

FINAL SITE INVESTIGATION REPORT

ANTHC Project No. AN-06-G16



TOGIAK HEALTH CENTER

T O G I A K ■ A L A S K A



FINAL
SITE INVESTIGATION REPORT

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TOGIAK, ALASKA

ANTHC Project No. AN-06-G16

Prepared for:

Alaska Native Tribal Health Consortium
4000 Ambassador Drive
Anchorage, Alaska 99508

Prepared by:

NANA/DOWL Engineers
4041 B Street
Anchorage, Alaska 99503
(907) 562-2000

W.O. D59146

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LIST OF ACRONYMS

ANTHC.....	Alaska Native Tribal Health Consortium
BBAHC.....	Bristol Bay Area Health Corporation
BHS.....	Behavioral Health Services
CHR.....	Community Health Representative
EMS.....	Emergency Medical System
HA.....	Health Assistant
HIPAA.....	Health Information Privacy Act
MD.....	Medical Doctor
PA.....	Physicians Assistant

1.0 GENERAL INTRODUCTION

This report documents the November 3, 2005, clinic and site investigation trip to Togiak. The design team consisted by Ian Van Blankenstein of NANA/DOWL Engineers and John Crittenden of Architects Alaska. Dave Beveridge represented Alaska Native Tribal Health Consortium (ANTHC). The trip opened with a meeting in the upstairs administrative area in the clinic building. The community was represented by Carolyn Carlos, clinic administrator for Bristol Bay Area Health Corporation (BBAHC); Frank Lagusa, vice president of the Traditional Council; Anicia Kritz; and Wilbur Baula, Land Planner for the Togiak Natives Ltd. Rose Hyano of BBAHC participated in the first part of the meeting by phone.

The Togiak area has a growing population, which has increased from 400 persons in 1970 to nearly 1,000 in 2005. In summer months, a herring processing plant located just across the bay causes the population to swell by 200 to 300 persons. During the active summer fishing months, the clinic is extremely active with all kinds of injuries. The current clinic does not have the space sufficient to meet the current demands. The clinic staff is urging the development of a clinic with nine exam rooms, including six regular exam rooms, two specialty exam rooms, and one dedicated Physician's Assistant (PA) or Medical Doctor (MD) exam room. Current statistics on patient visits to the clinic were not available at the time of our visit, but can be provided on request.

The community recently built a Family Resources Center that houses a Community Health Representative (CHR), Family Services, a Natural Helper, and Drug and Alcohol Programs. It is not anticipated that funding for a relocation of these programs to the clinic would be approved at this time. Consequently, this part of the clinic program has been cut back to two mental health type offices for use by transient providers and for patient consultation.

The community is sponsoring a Dental Therapist who is completing training in New Zealand. She will be working in this clinic. The dental suite is programmed for three to four chairs, and it is planned to have two of these in use full-time, with the third for use when the traveling dental team visits.

The need for housing for transient nursing staff was discussed. The current accommodations are in an upstairs storage room. This use should be discontinued because the space lacks an

exterior egress route, which does not comply with current codes and standards. The new clinic should provide an area with two double rooms, a toilet/shower, and access to a break room.

There is not sufficient space at the current clinic to meet the needs of the community. The current clinic also does not meet current codes and standards for clinics, such as the previously mentioned lack of egress route. Though a code and condition survey was done as part of this report, several other code issues are noted in the Section II, Draft Space Program. The clinic would require an expansion of almost double the existing space to meet the needs of the community. The existing portions of the clinic would also need renovation to come into code compliance.

The current clinic's site is not large enough to accommodate the desired expansion. The site is also in danger of seasonal flooding. Due to these site limitations, it was decided that this report would focus on construction of a new clinic instead of expanding and renovating the existing clinic.

Two sites were evaluated for the proposed clinic; one site is directly adjacent to the main store building, and the other site is located on undeveloped land on the access road to the school.

The site near the store will require the shared use of the existing parking area, and it will require fill material to bring the site up above the level of documented seasonal flooding. The community is not sure that filling the depressions will alleviate the flooding problem. The flooding is a result of ice dams that occur during breakup in the slough.

The alternate site is on a south sloping incline with good access from the community, from the developing housing area on the top of the hill, and from the airport. Its central location, its larger available area, and its location away from the seasonal flooding make it a suitable and preferable site for this facility. In January 2007, the clinic staff and the Traditional Council of Togiak agreed to locate the second site towards the new subdivision.

Given the size requirements for this clinic, and site and flooding concerns, it appears that the second site will provide the best land area. A civil review of the site options is included in Section III of this report.

2.0 DRAFT SPACE PROGRAM

This section outlines the thoughts and suggestions of Rose Hyano and Carolyn Carlos regarding the service level anticipated in the new clinic and what kind of services could be supportable over time. The chart below shows square footages that have been assigned to spaces. The staffing numbers are for full-time staff.

Room	Staffing	Description of functional needs
01 Reception	One-Two	The existing reception area is sufficient for workspace for two persons. The administrative area provides space for files, copy machine, and overflow work area.
02 Waiting	None	Existing waiting room has approximately 12 chairs, and it is frequently full with standing patients. There is a need for a larger space with an estimated 20 to 30 seats. Instead of one large waiting space, separate smaller clusters of waiting space are more appropriate, as well as providing options for separate children and adult sitting areas.
03 Meeting/Training	None	This space accommodates larger groups of 14 to 16 at a table, with a total capacity of 20 persons for special training for health care workers. It provides space for specialty clinics where group presentation to clients requires a larger space. It will be used for quarterly Health Resources and Services Administrator briefing sessions.
04 Trauma Room	None	A two-bed trauma room has been provided. The trauma beds may require physical separation in this community, possibly using a design for two independent single-bed rooms opening off a common control area.
05 Emergency Medical System (EMS)/Trauma Storage	None	Existing trauma supplies are located within the trauma access hallway and in a small closet near the back door. A larger consolidated area is needed for designated EMS storage for sleds, travel packs, etc. This room could contain the spare oxygen tanks. EMS storage can consist of a wall with cubicles for emergency response equipment. The wall would be organized for quick inventory and would have space for emergency stretchers, splints, blankets, medical supplies, and similar equipment.
06 Trauma Toilet Room	None	None provided in the existing clinic. New trauma room should have direct access to a toilet with a shower.
07 Casting Room	None	Many bones are set in this clinic. The casting room should contain space for the plaster casting materials, a work counter, and a sink with a plaster trap.

Room	Staffing	Description of functional needs
08 Regular Exam Rooms	None	The standard clinic exam room is 108 square feet. The existing clinic has a total of four exam rooms. These are small rooms with little space for extra equipment or family members. The new clinic will require six regular exam rooms for the Health Assistant (HA). The regular exam rooms will be used for ordinary visits, exams, and evaluations. Clinic staff requests good acoustic separation.
09 Exam Room Storage	None	All exam room storage will be within the individual rooms and in the designated storage areas. No special rooms provided for this.
10 Large Exam Rooms	None	These are larger exam rooms that have space for some specialized equipment. These rooms should accommodate the mobile Telemed and Polycam machines. The large exam rooms will be designated for specialty clinics, to include Optometry, Public Health Nursing, Natural Helper, and other special procedures clinics scheduled throughout the year, and will also be used by the MDs who visit the clinic. Two rooms are proposed.
11 PA Exam Room	None	The PA exam room is larger than the regular exam room to accommodate equipment for special procedures, staff assistants, and family.
12 Vitals Station	None	This area provides space for an adult scale, a baby scale, a working counter, and a chair. The area is to be used for collecting vital statistics on patients prior to being admitted to exam rooms. It offers a way to improve the flow through the exam rooms.
13 Administration	Two	Administration in the existing clinic is relatively limited, with one small room being used for the HA office, copying, faxing, and charting. Existing reception counter has good working space, but charting and exam room cannot be done in this area. The new clinic will have separate offices for the HAs and PAs where charting can be done, and the clinic administrator will have a separate office space. The new clinic will have a work area associated with the file room, the radio room, and the reception counter.
14 File Storage	None	This clinic needs a lockable file storage room, or space within a lockable administrative area, for ten file cabinets, or similar capacity in high-density file storage. The file room will have space for additional filing, file organization, and file preparation.
25 Private Consultation		This is a small consultation area adjacent to the waiting area to provide private conversations between the PA or HA and patient regarding the acquisition and use of drugs or the care and treatment of illness. The space allows the clinic to be in compliance with Health Information Privacy Act (HIPA) regulations. The space can also be used by the travel clerk to coordinate patient's required travel to Nome for additional medical procedures.

Room	Staffing	Description of functional needs
16 Pharmacy/Meds	None	A room for medicine storage and preparation has been provided separate from the lab. It will have a sink, a refrigerator, and appropriate shelving.
17 Laboratory	None	The lab needs to accommodate the testing and procedures that are a component of the PA's practice. The lab should accommodate a chair for phlebotomies and should have access to a toilet room suitable for drug test sampling.
18 Bedrooms	None	Two sleeping rooms have been programmed that will accommodate two persons each. Use of the clinic kitchen/break room will be shared. Patients being held overnight waiting for transport will be kept in the Trauma Room or a vacant exam room. Consideration should be made for problems with extended stays, possibly affecting the design of the trauma and sleep rooms as a separate area with gurney access.
19 Kitchen/Break Room	None	This space accommodates the break, lunch, and meeting needs of the clinic staff. It is designed to accommodate a table for eight. It will have a counter, microwave, sink, and refrigerator. It will also contain a small lounge area with more comfortable seating. Ten to twelve lockers for valuables are needed.
20 Staff Water Closet	None	This toilet is for use by staff during the workday and for itinerants during the evening. It should be equipped with a shower.
21 Public Toilets	None	Separate toilets for men and women are required for public use. Currently, one public toilet is provided. Toilets should be placed to serve the clinic waiting area and the additional non-clinic and itinerant office areas and be usable without entering the clinic service hallway.
22 Patient Toilets	None	The existing clinic does not have a designated patient toilet. Patients must exit the clinic area to use the toilet in the lobby. Two toilets located in the patient exam area will improve privacy and clinic hygiene. The International Plumbing Code requires separate facilities for men and women.
23 Laundry/Janitor	None	This room should include large cabinets for cleaning supplies. The needs for a hopper sink, as currently used, should be reviewed; it is probably not needed. The room needs an adequate area for a mop sink, mop storage, mop buckets, and a large scrubber. The room should also provide space for a washer/dryer and about three feet of counter space.
24 Custodian	One	This room provides a storage location for the building custodian's supplies, provides an additional mop sink, and also provides a small workspace and tool storage area for a part-time custodian.
25 Dental Suite	Two	Togiak has sponsored a dental therapist who is in training in New Zealand. This therapist will work full-time in the clinic, and assist the traveling dental team. This program will make use of three to four chairs; two in an open shared space and two in a separate operator. A dentist

Room	Staffing	Description of functional needs
		can work most efficiently if there are three chairs and a dental hygienist. The Dental Therapist will use one or two of these chairs on a permanent basis. The dental suite will have a lab area and an office for the therapist. It will have digital x-ray capability, a storage area, and direct access to a toilet.
26 PA/Clinic Manager Office	One	Two offices are planned; one for a clinically trained manager will work in the clinic to oversee work, billing, and care management, and the other office for an itinerant MDs and Public Health Nurses.
27 HA/Nursing Staff	Seven	Currently, there are five full-time nursing/HA staff. This number is expected to increase to seven in the new clinic, with a day shift of five. Nurses will do charting in these work areas. Office space will consist of shared offices for two to three persons each.
28 Behavioral Health Services (BHS) Offices	Two-Three	Togiak has a recently constructed a Family Resource Center that provides space for programs like Family Services, CHR, Drug and Alcohol Programs, etc. The clinic has considered relocating all the counseling offices to the new clinic, but this may be impractical, considering the recently constructed new facilities. The new clinic will, however, require at least two office/ counseling rooms for patients related to their medical treatment. If the entire behavioral program is relocated to the clinic, this area of the clinic will have to be rethought and will substantially expand the scope of the design. For now, the clinic should be designed to allow convenient future expansion to accommodate the BHS program.
29 BHS Counseling	One-Two	This function will be contained in the two offices provided under item 28 above.
30 Communications	None	The computer equipment for telemedicine is located in a communications room, which contains the telephone board and the network system. This space will need to be replicated in the new clinic. The Telemed cart and a Polycom cart will have dedicated storage space in the specialty exam rooms and/or in the trauma room.
31 Telemed/Polycam Reading	None	This will be a small room that will contain monitors for viewing images from the surrounding communities. It will allow communications and transfer of data to the Kakanak Hospital and Alaska Native Medical Center.
32 General Storage	None	Storage is the first space found to be deficient in most new clinics. The storage space is essential for a remote site. The space was located so in the future it could be converted to program space as needs grow, and additional storage space could be created outside the current building footprint without affecting the overall building layout and function. General storage can contain equipment waiting for shipment out, deliveries, computer boxes, and bulk backup storage of general supplies.

Room	Staffing	Description of functional needs
33 Medical Supply	None	The medical supply room contains daily supplies that cannot be kept in the exam rooms and items that require closer inventory management. This room should have an organized shelving system and counter surface for inventory, sorting, etc.
34 Sterilizer Room	None	The clinic does quite a bit of suturing; consequently, the small sterilizer gets a lot of use. The existing room probably contains sufficient counter and storage space, but it is too tight to be really serviceable. A larger space is needed for this activity.
35 Morgue	None	Two double-body morgue units are planned to be located in the garage. Note that end-loading morgue units accommodate a two-tier rolling body stretcher reducing the need to lift bodies up into an upper, separate chamber. This should be evaluated with the client.
36 Vehicle Bay	None	Togiak has two vehicles used for emergency transport. A two-bay space will be provided for these vehicles. The space will be sized to allow transfer of patients into and out of the vehicles directly to/from the trauma room. The vehicle bay will also contain the EMS storage.
37 Building Maintenance	One	Placing this space in the mechanical mezzanine was considered; however, a location in the support building would put this person near the rescue equipment and would provide workspace for equipment repair.
38 Trauma Vestibule	None	The vestibule leading to the Trauma Room accommodates stretcher access. Entry should be protected from the wind.
39 Public Vestibule	None	This is the main entrance vestibule, which is separate from the trauma entry. Entry should be protected from the wind.

Square Footage Summary Chart and Program Area Requirements

	Room Name	Togiak Existing	Togiak Proposed	Comments
1	Reception	95	100	
2	Waiting Area	280	375	25 p x 15 square feet
3	Meeting/Training Room	0	300	20 p x 15 square feet
4	Trauma Room	195	350	
5	EMS/Trauma Storage (to be located in vehicle bay)	0	80	
6	Trauma Toilet/Shower	0	75	
7	Casting Room	0	65	
8	Regular Exam Rooms 2 @ 81 and 2 @ 95 exist	162 + 190 = 352	648	6 @ 108 square feet
9	Exam Room Storage	6	80	(in room areas)
10	Large Exam Room w/Storage	0	300	2 @ 150 square feet
11	PA or MD Exam Room	0	140	one
12	Vitals Station	0	50	(located in hallway)
13	Administration (Charting Room @ Togiak)	120	120	(linked to reception)
14	Files (existing Togiak files in Reception Area)	73	150	File/workroom
15	Private Consultation Station	0	50	HIPAA Compliance
16	Pharmacy/Med Storage	50	130	
17	Lab (with toilet at existing)	66 + 35 =101	80	
18	Bedrooms (existing in one room)	1 @ 204	180	2 @ 90 square feet
19	Kitchen/Break	125	180	
20	Toilet with Shower @ Break Area for Staff	1 @ 36	75	
21	Public Toilets – (separate Men and Women)	1 @ 70	120	2 @ 60 square feet
21	Toilet with Shower @ Break Area for Staff	1 @ 36	75	
22	Patient Toilets	0	120	2 @ 60 square feet
23	Janitor/Laundry	65	100	
24	Custodian/Maintenance Room	0	80	
25	Dental Exam and Workroom (detached @ Togiak)	300	420	4 chairs,WC,Off, lab
26	PA/Manager Offices	1,164	240	2 @ 120
27	HA Offices	0	300	5 HAs. + Ininerant
28	BHS Offices	0	260	2 Offices
29	BHS Counseling Room	0	0	Not proposed
30	Telemed/Telecom	44	80	
31	Telemed Polycom Reading/Consultation Room	44	80	
32	General Storage (crutches, water closets, walkers, etc.)	29	100	In Mech. Mezzanine
33	Medical Supplies (bandages, splints, etc.)	48	80	
34	Sterilizer Room	52	75	
35	Morgue	0	120	Two double body units
36	Warm Vehicle Storage/Trauma Bay (2 vehicles)	0	600	
	Total Net Area	3,286	7,173	
	Corridors/Halls/Stairs (stair area counted once)	550		
	Emergency Vestibule/Hall	54		
	Main Entry Vestibule	70		
	Exit Hall	0		
	Exterior and Interior Walls and Structure	225		
	Mechanical Room	80		
	Gross Area Summary	979		
	0.45 x Net Area (Denali Factor)		3,328	
	Gross Area Excluding Mechanical	4,265	10,501	
	0.08 x Gross for Mechanical (Denali Factor)		840	
	Total Gross Square Foot	4,265	11,341	

3.0 SITE DESIGN ISSUES

Since expansion and renovation the existing clinic is considered infeasible, prior to the site visit, four sites had been identified by the community for the proposed new clinic. Three of the sites were located within the existing town area, although only the site adjacent to the store appears to have space available for the size of the proposed clinic. The remaining site is located at the base of the slope on the road to the Togiak Heights Subdivision.

The site located near the Togiak Heights Subdivision (see Figure 1) is near the new development area of Togiak. Many new homes and the new school have been built in the area, and other lots are scheduled for construction. The elevation of the site is away from the flooding concerns that occur in town. Since the site is undeveloped, there is sufficient space for the proposed clinic, parking, and site access. The site is located at the base of a hill on which the new development is occurring. Although the site is located approximately one mile away from town, there is direct access to the airport.

The community water well is located approximately 1,800 feet east of the site along Togiak Heights Road. The community would like to connect to the community water, but it may not be feasible. The school and houses in the area all operator on-site wells with adequate water. The most likely the clinic will require an on-site well.

There community sewage lagoon is located about 2,500 feet east of the site along Togiak Heights Road. It seems the site will likely require on-site septic tanks and leach field for sewage disposal. The eastern side of the site has several feet of wet peat that is not suitable for an on-site septic system. The western part of the site is higher and drier and may be adequate for an on-site septic system. Further soils investigations will be required. If it is not adequate, the clinic may need a septic hauling system. Power is available along the road to town.

The site adjacent to the community store is located in a low area that is approximately five feet lower than the community store pad (see Figure 2). Based on feedback from the community, this area is prone to flooding as is much of the existing town area. The site is served by water services on the north side of the lot, and a fire hydrant is located on the

northwest side of the lot. Sewer service is located adjacent to the property. The site has good access to the airport.

In July 2007, DOWL Engineers preformed a preliminary soils investigation for the preferred site. The investigation included six tests pits approximately 12 feet in depth and several soil samples. The subsequent report describes potential foundations types. In September 2007, DOWL Engineers preformed a topographic and boundary survey of the preferred site.

4.0 COST ESTIMATES

Estimations, Inc. provided construction cost estimates for renovating/expansion of the existing clinic and a new clinic on the proposed Togiak Heights site. The estimates are rough order of magnitude because the design is conceptual. Both estimates assume single story buildings on driven pile foundations with raised gravel pads. Neither cost estimate includes an estimating contingency or escalation for inflation. Both these will have to be estimated prior to requesting funding.

The estimate for renovating/expansion of the existing clinic is \$7,150,000. The estimate for a new clinic on the proposed Togiak Heights site is \$7,900,000. Breaks down of these estimates are include in the appendix.

The two estimates are similar. The difference between the two options is approximately ten percent, which is within normal estimating contingencies for a conceptual design. A new clinic is still preferred because of the existing clinic site would not accommodate the required additions. The community also favors the new clinic site over the existing.

5.0 SUMMARY

This facility report forms the outline for the actual space program that will be developed in the future as a part of a design services contract. Additional information on the individual spaces will be collected and square footages assigned. The raw program space will be increased to account for mechanical and electrical rooms, circulation space, and general structural components (walls, stairs, etc.). Any suggestions regarding actual design have not been made at this time. A concept floor plan showing the relationship between spaces and a concept site-development plan of the selected site is attached.

The expansion and renovation of the existing clinic is not feasible. In coordination with the community, a site near the Togiak Heights Subdivision has been selected for the proposed clinic. The site will likely require on-site water and septic system. A preliminary geotechnical investigation and a topographical and boundary survey were performed for the preferred site. Additional site information will have to be obtained before the site and foundation designs can be started.

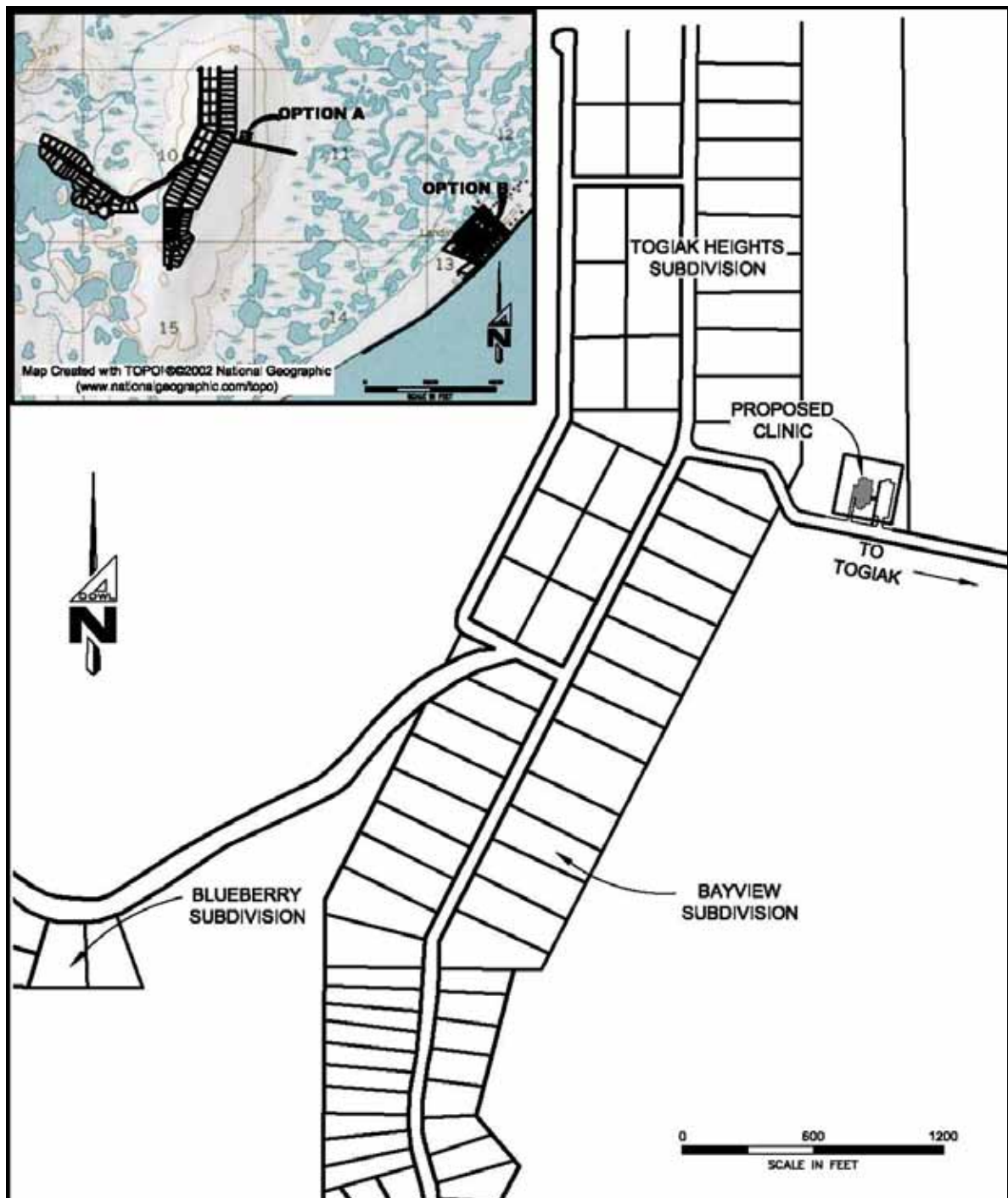


Figure 1: Option A Site Location Map

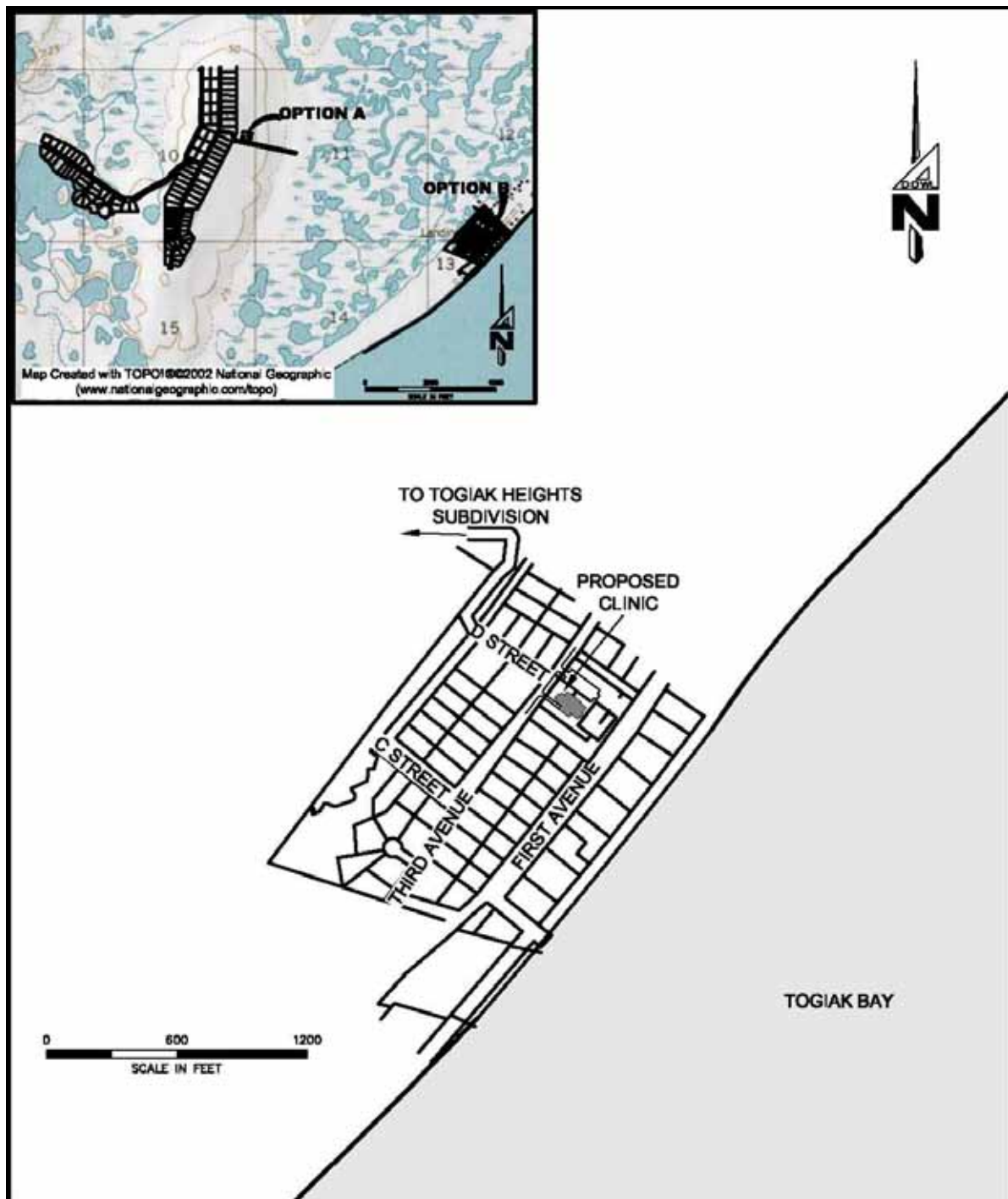
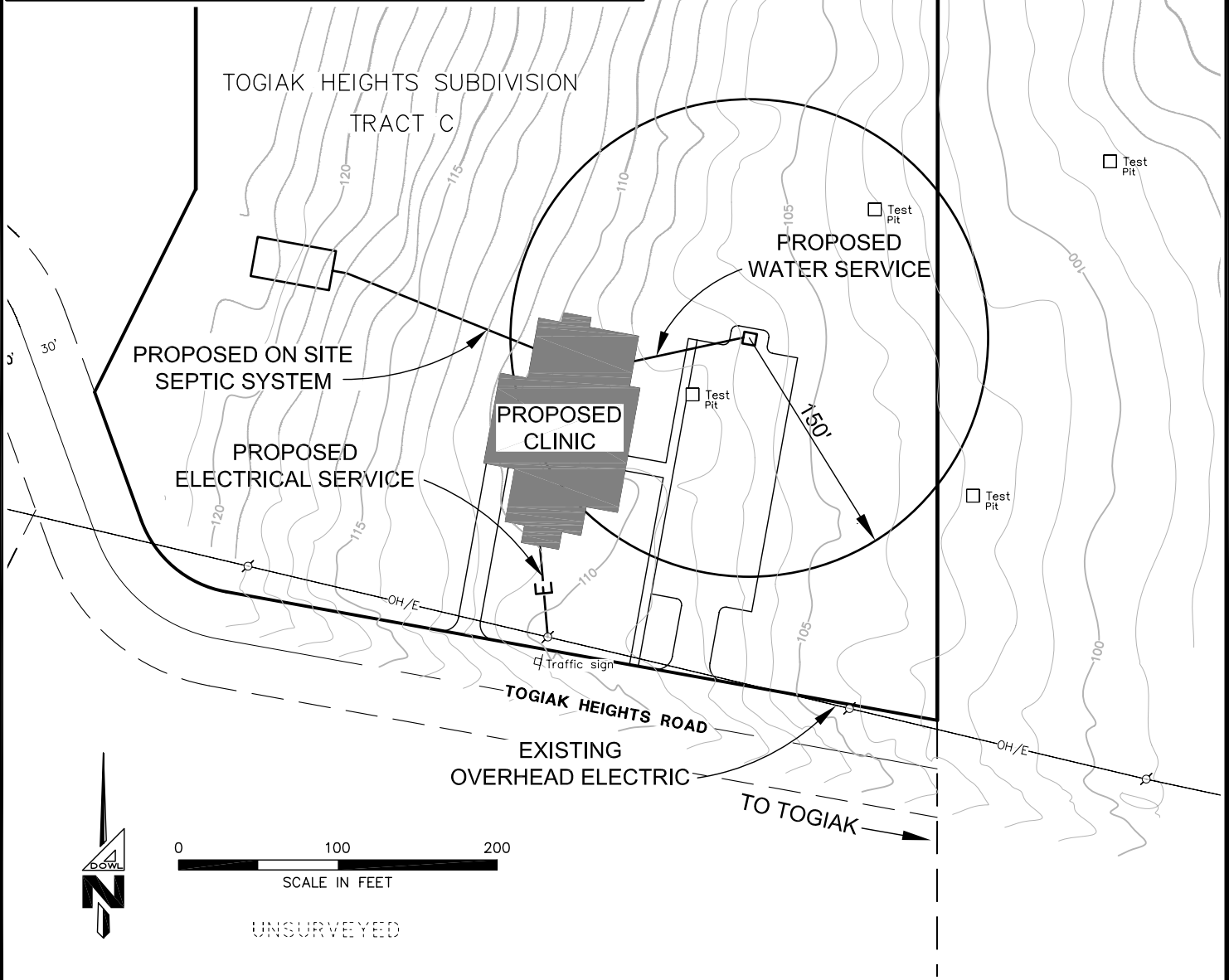
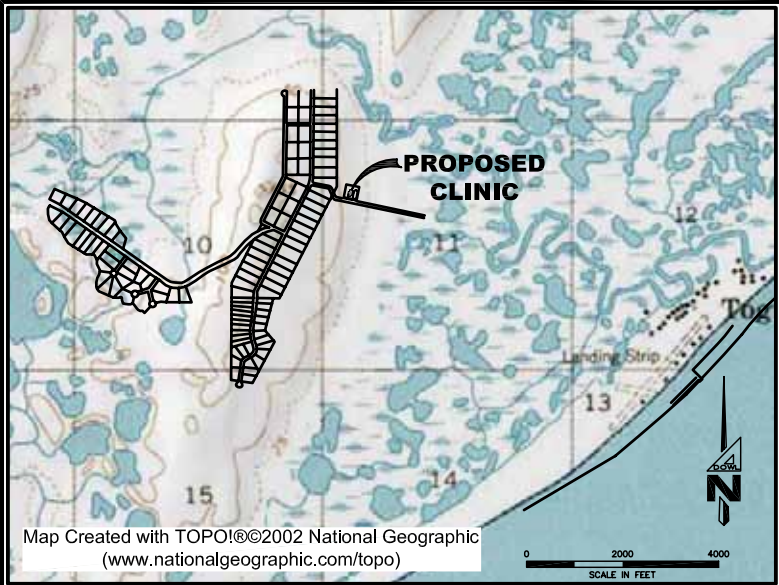


Figure 2: Option B Site Location Map

APPENDIX A

Proposed Concept and Site Plans

A1



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SCALE: AS SHOWN



Concept Site Location Map
TOGIAK HEALTH
CLINIC
Togiak, Alaska

FIGURE A

APPENDIX B

Site Photographs



Photograph 1: Existing Clinic, Exterior, Front Building Face



Photograph 2: Existing Clinic, Exterior, Building Sign



Photograph 3: Existing Clinic, Interior, Reception Area



Photograph 4: Existing Clinic, Interior, Reception Desk



Photograph 5: Existing Clinic, Interior, Exam Room



Photograph 6: Existing Clinic, Interior Floor Cracking



Photograph 7: Existing Clinic, Interior, Storage and Emergency Exit



Photograph 8: Proposed Clinic, Togiak Heights Site, Looking East Across Site



Photograph 9: Proposed Clinic, Togiak Heights Site, Looking North from Road



Photograph 10: Proposed Clinic, Togiak Heights Site, Looking South from North Side



Photograph 11: Proposed Clinic, Togiak Heights Site, Looking Southwest from North Side

APPENDIX C

Cost Estimates

Togiak Health Center
New Clinic Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
A Substructure		11,341	GSF	\$48.14		\$546,000
A10 Foundations					\$546,000	
A20 Basement Construction					\$0	
B Shell		11,341	GSF	\$83.44		\$946,347
B10 Superstructure					\$404,623	
B20 Exterior Closure					\$361,169	
B30 Roofing					\$180,555	
C Interiors		11,341	GSF	\$47.43		\$537,911
C10 Interior Construction					\$286,075	
C20 Stairs					\$39,000	
C30 Interior Finishes					\$212,836	
D Services		11,341	SF	\$141.03		\$1,599,370
D10 Conveying					\$0	
D20 Plumbing					\$207,500	
D30 HVAC					\$648,663	
D40 Fire Protection					\$135,046	
D50 Electrical					\$589,732	
E Equipment		11,341	GSF	\$2.25		\$25,517
E10 Equipment					\$0	
E20 Furnishings					\$0	

Togiak Health Center
New Clinic Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
F Special Construction and Demolition						
F10 Special Construction		11,341	GSF	\$0.00		\$0
F20 Selective Building Demolition					\$0	\$0
G Sitework		1.2	AC	223,038.58		267,646
G10 Site Preparation					\$1,800	
G20 Site Improvements					\$90,023	
G30 Site Mechanical Utilities					\$84,000	
G40 Site Electrical Utilities					\$2,500	
G50 Other Site Construction					\$0	
Z Other Costs		11,341	GSF	\$352.71		\$4,000,036
Z10 General Requirements, Overhead & Profit						\$0
Z20 Estimating Contingency						\$0
Z30 Escalation For Inflation						\$0
Total Estimated Cost		11,341	GSF	\$698.60		\$7,922,827

Togiak Health Center
New Clinic Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
A Substructure		11,341	GSF			\$546,000
A10 Foundations		11,341	SF		\$546,000	\$48.14
	Piling, Driven Steel Piles 12" 35' Embedment	84	EA	\$6,500.00	\$546,000	\$48.14
A20 Basement Construction		-	NONE		\$0	\$0.00
B Shell		11,341	GSF			\$946,347
B10 Superstructure		11,341	SF		\$404,623	\$83.44
	Subfloor Construction, Glulam Support Beams, Bracin	11,341	SF	\$5.77	\$65,475	\$35.68
	Floor Construction, TJI, Plywood, Etc	11,341	SF	\$10.80	\$122,483	
	Roof Construction, Premanf. Trusses, Sheathing, Etc	12,897	SF	\$16.80	\$216,666	
B20 Exterior Closure		9,366	SF		\$361,169	\$38.56
	Framed Wall, Insulation, Vapor Barriers, Air Barriers,	9,366	SF	\$22.20	\$207,916	
	Hardiplank Siding					
	Windows	1,873	SF	\$65.00	\$121,753	
	Exterior Doors	4	EA	\$2,000.00	\$8,000	
	Entrances	3	EA	\$6,500.00	\$19,500	
	OH Door	1	EA	\$4,000.00	\$4,000	
B30 Roofing		12,897	SF		\$180,555	\$14.00
	Standing Seam Metal Roof System	12,897	SF	\$14.00	\$180,555	

Togiak Health Center
New Clinic Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
C Interiors		11,341	GSF			\$537,911
C10 Interior Construction		11,341	SF		\$286,075	\$47.43
Partitioning		18,713	SF	\$15.00	\$280,690	\$25.22
Doors		106	EA	\$51.00	\$5,386	
C20 Stairs		650	SF		\$39,000	\$60.00
Exterior Stairs and Ramps		650	SF	\$60.00	\$39,000	
C30 Interior Finishes		11,341	SF		\$212,836	\$18.77
Flooring		11,341	SF	\$7.75	\$87,893	
Wall Finishes		26,512	SF	\$2.36	\$62,568	
Ceilings		11,341	SF	\$5.50	\$62,376	
D Services		11,341	SF			\$1,599,370
D10 Conveying			NONE		\$0	\$0.00
D20 Plumbing		50	FIX		\$207,500	\$4,150.00
Plumbing Fixtures		50	FIX	\$1,400.00	\$70,000	
Plumbing Piping		50	FIX	\$2,600.00	\$130,000	
Plumbing Equipment		1	LS	\$7,500.00	\$7,500	
D30 HVAC		11,341	SF		\$648,663	\$57.20
Heat		1,356	MBH	\$73.00	\$98,988	
Heating Distribution		11,341	SF	\$14.00	\$158,774	
Vent		11,341	SF	\$22.00	\$249,502	
Fuel		5,000	GAL	\$9.00	\$45,000	
Controls		11,341	SF	\$8.50	\$96,399	
D40 Fire Protection		11,341	SF		\$135,046	\$11.91
Sprinklers		11,341	SF	\$6.00	\$68,046	
Fire Pump		1	EA	\$22,000.00	\$22,000	
Fire Water Storage		15,000	GAL	\$3.00	\$45,000	

Togiak Health Center
New Clinic Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
D50 Electrical		11,341	SF		\$589,732	\$52.00
Service		11,341	SF	\$6.50	\$73,717	
Distribution		11,341	SF	\$11.50	\$130,422	
Lighting		11,341	SF	\$34.00	\$385,594	
Fire Detection		11,341	SF	\$3.00	\$34,023	
Misc Special Systems		11,341	SF	\$0.25	\$2,835	
E Equipment		11,341	GSF		\$25,517	\$2.25
E10 Equipment		11,341	SF		\$8,506	\$0.75
Dental Equipment - Not Included		-	NONE		\$0	
Misc Equipment		11,341	SF	\$0.75	\$8,506	
E20 Furnishings		11,341	SF		\$17,012	\$1.50
Casework, Built-in		11,341	SF	\$1.50	\$17,012	
FFE Package - Not Included		-	NONE			
F Special Construction and Demolition		11,341	GSF		\$0	\$0.00
F10 Special Construction		-	NONE		\$0	
F20 Selective Building Demolition		-	NONE		\$0	

Togiak Health Center
New Clinic Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
G Sitework		1.2	AC			267,646.30
G10 Site Preparation		1.2	AC		\$1,800	223,038.58
	Light Brush Clearing	1.2	AC	\$1,500.00	\$1,800	\$1,500.00
G20 Site Improvements		51,500	SF		\$90,023	\$1.75
	Building Pad, 2'	20,000	SF	\$1.70	\$34,074	
	Drives & Parking, 2'	20,000	SF	\$1.70	\$34,074	
	Walks, Concrete	1,500	SF	\$11.25	\$16,875	
	Seeding	10,000	SF	\$0.50	\$5,000	
G30 Site Mechanical Utilities		1	LS		\$84,000	\$84,000.00
	Water Well	1	EA	\$25,000.00	\$25,000	
	Water Service Line	100	LF	\$125.00	\$12,500	
	Septic Tank	2,000	GAL	\$5.00	\$10,000	
	Drain Field, Above Grade	2,500	SF	\$12.00	\$30,000	
	Sewer Service Line	100	LF	\$65.00	\$6,500	
G40 Site Electrical Utilities		1	LS		\$2,500	\$2,500.00
	Assume Utility Will Provide To Site			\$0.00	\$0	
	Allow For Connection To Utility Transformer	1	LS	\$2,500.00	\$2,500	
G50 Other Site Construction						\$0.00

Togiak Health Center
New Clinic Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
Z Other Costs						
Z10 General Requirements, Overhead & Profit		11,341	GSF			\$352.71
Mob/Demob		11,341	SF		\$2,197,340	\$193.75
Travel		60	TRIPS	\$800.00	\$48,000	
Freight - Materials		425	TONS	\$600.00	\$255,000	
Freight - Equipment		50	TONS	\$1,200.00	\$60,000	
Site Facilities		16	MTHS	\$30,000.00	\$480,000	
Room & Board		2,670	MDAYS	\$130.00	\$347,100	
Management		5.0%			\$255,645	
OH&P		14.0%			\$751,595	
Z20 Estimating Contingency		15%			\$918,020	
Z30 Escalation For Inflation (2009 Construction)		13%			\$884,676	
Total Estimated Cost					\$7,922,827	\$698.60

Togiak Health Center
Addition/Renovation Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
A Substructure						
A10 Foundations		11,341	GSF	\$51.23	\$581,000	\$581,000
A20 Basement Construction					\$0	
B Shell		11,341	GSF	\$65.23		\$739,816
B10 Superstructure					\$254,024	
B20 Exterior Closure					\$305,237	
B30 Roofing					\$180,555	
C Interiors		11,341	GSF	\$42.17		\$478,269
C10 Interior Construction					\$248,963	
C20 Stairs					\$39,000	
C30 Interior Finishes					\$190,306	
D Services		11,341	SF	\$125.81		\$1,426,861
D10 Conveying					\$0	
D20 Plumbing					\$171,500	
D30 HVAC					\$608,969	
D40 Fire Protection					\$135,046	
D50 Electrical					\$434,913	
E Equipment		11,341	GSF	\$1.75		\$19,847
E10 Equipment					\$0	
E20 Furnishings					\$0	

Togiak Health Center
Addition/Renovation Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
F Special Construction and Demolition						
F10 Special Construction		11,341	GSF	\$4.24		\$48,143
F20 Selective Building Demolition					\$0	\$0
G Sitework						
G10 Site Preparation		1.2	AC	176,544.75	\$1,800	211,854
G20 Site Improvements					\$62,127	
G30 Site Mechanical Utilities					\$84,000	
G40 Site Electrical Utilities					\$2,500	
G50 Other Site Construction					\$0	
Z Other Costs						
Z10 General Requirements, Overhead & Profit		11,341	GSF	\$320.83		\$3,638,526
Z20 Estimating Contingency						\$0
Z30 Escalation For Inflation						\$0
Total Estimated Cost		11,341	GSF	\$629.95		\$7,144,314

Togiak Health Center
Addition/Renovation Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
A Substructure		11,341	GSF			\$581,000
A10 Foundations		11,341	SF		\$581,000	\$51.23
Piling, Driven Steel Piles 12" 35' Embedment - Add	54	EA	\$6,500.00		\$351,000	\$51.23
Piling, Driven Steel Piles 12" 35' Embedment - Extg	30	EA	\$6,500.00		\$195,000	
Relocate Bldg Temporarily Off Foundation For Pilings	1	LS	\$35,000.00		\$35,000	
A20 Basement Construction		-	NONE		\$0	\$0.00
B Shell		11,341	GSF			\$739,816
B10 Superstructure		7,076	SF		\$254,024	\$65.23
Subfloor Construction, Glulam Support Beams, Bracin	7,076	SF	\$5.77		\$40,852	\$35.90
Floor Construction, TJI, Plywood, Etc	7,076	SF	\$10.80		\$76,421	
Roof Construction, Premanf. Trusses, Sheathing, Etc	8,140	SF	\$16.80		\$136,752	
B20 Exterior Closure		9,370	SF		\$305,237	\$32.58
Framed Wall, Insulation, Vapor Barriers, Air Barriers,	6,556	SF	\$22.20		\$145,543	
Hardiplank Siding	2,814	SF	\$6.00		\$16,884	
New Siding (At Existing For Matching Appearance)	1,874	SF	\$65.00		\$121,810	
Windows	2	EA	\$2,000.00		\$4,000	
Exterior Doors	2	EA	\$6,500.00		\$13,000	
Entrances	1	EA	\$4,000.00		\$4,000	
OH Door						
B30 Roofing		12,897	SF		\$180,555	\$14.00
Standing Seam Metal Roof (All New, For No Seams)	12,897	SF	\$14.00		\$180,555	

Togiak Health Center
Addition/Renovation Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
C Interiors		11,341	GSF			\$478,269
C10 Interior Construction		11,341	SF		\$248,963	\$42.17
Partitioning - New		11,600	SF	\$15.00	\$174,000	\$21.95
Partitioning - Renovation		4,692	SF	\$15.00	\$70,373	
Doors		90	EA	\$51.00	\$4,590	
C20 Stairs		650	SF		\$39,000	\$60.00
Exterior Stairs and Ramps		650	SF	\$60.00	\$39,000	
C30 Interior Finishes		11,341	SF		\$190,306	\$16.78
Flooring		9,640	SF	\$7.75	\$74,709	
Wall Finishes		26,516	SF	\$2.36	\$62,578	
Ceilings		9,640	SF	\$5.50	\$53,019	
D Services		11,341	SF			\$1,426,861
D10 Conveying			NONE		\$0	\$0.00
D20 Plumbing		41	FIX		\$171,500	\$4,182.93
Plumbing Fixtures (Reuse 50% Of Existing)		41	FIX	\$1,400.00	\$57,400	
Plumbing Piping		41	FIX	\$2,600.00	\$106,600	
Plumbing Equipment		1	LS	\$7,500.00	\$7,500	
D30 HVAC		11,341	SF		\$608,969	\$53.70
Heat (New Boiler System)		1,356	MBH	\$73.00	\$98,988	
Heating Distribution (Reuse Baseboard)		11,341	SF	\$10.50	\$119,081	
Vent (New System)		11,341	SF	\$22.00	\$249,502	
Fuel		5,000	GAL	\$9.00	\$45,000	
Controls		11,341	SF	\$8.50	\$96,399	
D40 Fire Protection		11,341	SF		\$135,046	\$11.91
Sprinklers (Assume Existing Is Not Sprinklered)		11,341	SF	\$6.00	\$68,046	
Fire Pump		1	EA	\$22,000.00	\$22,000	
Fire Water Storage		15,000	GAL	\$3.00	\$45,000	

Togiak Health Center
Addition/Renovation Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
D50 Electrical		11,341	SF		\$434,913	\$38.35
Service		11,341	SF	\$6.50	\$73,717	
Distribution - Addition		7,076	SF	\$11.50	\$81,374	
Distribution - Renovation (25% Reuse)		4,265	SF	\$9.20	\$39,238	
Lighting - Addition		7,076	SF	\$34.00	\$240,584	
Lighting - Renovation (25% Reuse)		4,265	SF	\$27.20	\$116,008	
Fire Detection		11,341	SF	\$3.00	\$34,023	
Misc Special Systems		11,341	SF	\$0.25	\$2,835	
E Equipment		11,341	GSF		\$19,847	\$1.75
E10 Equipment		11,341	SF		\$8,506	\$0.75
Dental Equipment - Not Included		-	NONE		\$0	
Misc Equipment		11,341	SF	\$0.75	\$8,506	
E20 Furnishings		11,341	SF		\$11,341	\$1.00
Casework, Built-in		11,341	SF	\$1.00	\$11,341	
FFE Package - Not Included			NONE		\$0	
F Special Construction and Demolition		11,341	GSF		\$48,143	\$4.24
F10 Special Construction		-	NONE		\$0	\$0.00
F20 Selective Building Demolition		4,265	SF		\$48,143	\$11.29
Gut 50% Of Interior For Reuse		2,133	SF	\$15.00	\$31,988	
Demo Roofing		4,265	SF	\$3.00	\$12,795	
Demo Exterior Siding 75%		3,360	SF	\$1.00	\$3,360	

Togiak Health Center
Addition/Renovation Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
G Sitework		1.2	AC			211,853.70
G10 Site Preparation		1.2	AC		\$1,800	176,544.75
	Light Brush Clearing	1.2	AC	\$1,500.00	\$1,800	\$1,500.00
G20 Site Improvements		32,300	SF		\$62,127	\$1.92
	Building Pad, 2'	12,400	SF	\$1.70	\$21,126	
	Drives & Parking, 2'	12,400	SF	\$1.70	\$21,126	
	Walks, Concrete	1,500	SF	\$11.25	\$16,875	
	Seeding	6,000	SF	\$0.50	\$3,000	
G30 Site Mechanical Utilities		1	LS		\$84,000	\$84,000.00
	Water Well	1	EA	\$25,000.00	\$25,000	
	Water Service Line	100	LF	\$125.00	\$12,500	
	Septic Tank	2,000	GAL	\$5.00	\$10,000	
	Drain Field, Above Grade	2,500	SF	\$12.00	\$30,000	
	Sewer Service Line	100	LF	\$65.00	\$6,500	
G40 Site Electrical Utilities		1	LS		\$2,500	\$2,500.00
	Assume Utility Will Provide To Site			\$0.00	\$0	
	Allow For Connection To Utility Transformer	1	LS	\$2,500.00	\$2,500	
G50 Other Site Construction						\$0.00

Togiak Health Center
Addition/Renovation Option
Togiak, Alaska

Construction Cost Estimate
Prepared for NANA/DOWL Engineers
November 28, 2007

Summary (Level 2)		Qty	Unit	Unit Cost	Subtotal	Total Cost
Z Other Costs						
Z10 General Requirements, Overhead & Profit		11,341	GSF			\$320.83
Mob/Demob		11,341	SF		\$2,012,966	\$177.49
Travel		56	TRIPS	\$800.00	\$44,800	
Freight - Materials		340	TONS	\$600.00	\$204,000	
Freight - Equipment		50	TONS	\$1,200.00	\$60,000	
Site Facilities		16	MTHS	\$30,000.00	\$480,000	
Room & Board		2,430	MDAYS	\$130.00	\$315,900	
Management		5.0%			\$230,524	
OH&P		14.0%			\$677,742	
Z20 Estimating Contingency		15%			\$827,813	
Z30 Escalation For Inflation (2009 Construction)		13%			\$797,746	
Total Estimated Cost					\$7,144,314	\$629.95

APPENDIX D

Denali Commission Checklist

Denali Commission Rural Primary Care Facility Project Site Plan Checklist

TOGIAK HEALTH CLINIC

Applicant Name

The purpose of this Site Plan Checklist is to address early project development issues and questions. Some examples may include:

1. Analyze proposed clinic site(s) for suitability (utility connections / on-site sanitation review, patient access, room for growth, zoning and site separation distances and reasonable development costs, etc.). Applicants are encouraged to consider alternative clinic sites during the Conceptual Planning process. At the end of the process the choices should be narrowed to one preferred site. In a few cases with "Large" clinics it may not be possible to select a preferred site without additional work.
2. Site control or the process and timing for achieving site control will be identified (e.g. land conveyance, formal lease documents to be signed). The following website provides some background information about site control issues:
<http://www.commerce.state.ak.us/dca/I.OGON/plan/planning-site.htm>
3. Confirming compatible and appropriate multi-use programs that may be housed with the clinic facility or in a campus setting.

Successful completion of this step and the rest of the Conceptual Planning products will lead the Applicant into the Facility Design and Construction process for a new or renovated healthcare facility.

Note – If the construction project is not started within 24 months after the Business Plan and Site Plan Checklist is approved, the Plan and Checklist must be updated before Construction Funds can be awarded.

Send three copies of your Site Plan Checklist and attachments to:

Denali Commission
Attn: Health Facilities Program
510 "L" Street
Suite 410 (Peterson Tower)
Anchorage, Alaska 99501

Contact your Technical Assistance Subcommittee advisor if you have questions

Denali Commission

Alaska Primary Care
Association

State of Alaska
Dept of Public Health
Community Health/EMS

Alaska Center
for Rural Health



Introduction

This document has been prepared as a Microsoft Word document. The text boxes after each question will expand as you type in your answers.

When you have completed the Site Plan Checklist, submit it to the Denali Commission Technical Assistance Subcommittee (TASC) for review. Please note that there is some duplication between the Site Plan Checklist and the Business Plan. Health providers will review the Business Plan, whereas construction management professionals will review the Site Plan Checklist. Consequently we are asking for some duplication of material.

Once the Business Plan and Site Plan Checklist are approved, you should be ready to move into the formal Facility Design stage. This stage will finalize site control issues, resolve any design issues, determine project costs and produce architectural documents.

Use of Conceptual Planning Funds

If the assessment is completed with in-house staff, funds can be used to cover costs for direct project expenses (e.g. travel, soil testing, site surveying), but not salaries of in-house personnel. An architectural and engineering firm may be hired to address site development matters, determine square footage requirements and develop a conceptual floor plan based upon the services to be provided. A conceptual floor plan typically shows the full program of services to be offered within the facility and a conceptual site plan of the facility will be prepared. It is not expected that building and environmental permits will be applied for during the conceptual planning phase, however site information should be gathered at this phase so these permits can be obtained during the design phase.

Technical Assistance Subcommittee:

Listed below are contacts for questions you may have regarding the Business Plan or Site Plan Checklist.

Contact	Phone #	E-mail Address	Organization
Marilyn Kasmir, Chair	929-2722	marilyn@alaskapca.org	Alaska Primary Care Association
Suzanne Niemi	929-2732	suzanne@alaskapca.org	Alaska Primary Care Association
Carolyn Gove	276-4683	carolyn@alaskapca.org	Alaska Primary Care Association
Pat Carr	465-8618	pat_carr@health.state.ak.us	State of Alaska, DHSS
Noel Rea	269-5024	noel_rea@health.state.ak.us	State of Alaska, DHSS
Mark Millard	465-8534	mark_millard@health.state.ak.us	State of Alaska, DHSS
Beth Landon	786-6589	anbml@uaa.alaska.edu	Alaska Center for Rural Health
Mary Anaruk	786-6587	anmea@uaa.alaska.edu	Alaska Center for Rural Health
Mariko Selle	786-6591	mariko@uaa.alaska.edu	Alaska Center for Rural Health
Sanna Doucette	786-6583	ansnf@uaa.alaska.edu	Alaska Center for Rural Health
Roger Marcil	729-3747	Rmarcil@anthc.org	Alaska Native Tribal Health Consortium
Tessa Rinner	271-1624	trinner@denali.gov	Denali Commission
Denali Daniels	271-1189	ddaniels@denali.gov	Denali Commission

Role of ANTHC for "Small" and "Repair and Renovation" projects

ANTHC serves as the Commission's fund manager for the "Small" and "Repair and Renovation" programs. All conceptual planning for these 2 programs will require a sub-award agreement with ANTHC. This agreement will provide a brief description of the scope of work, funding, and time frame

to complete the conceptual planning phase. ANTHC engineers will also provide oversight for site development matters and are available for consultation at the level desired by the community.

Please answer the following questions:

Plans for Existing Clinic (If being replaced by new clinic)

Will your project replace the existing clinic with a new clinic? ☒ Yes ☐ No

If YES, what plans do you have for using the existing clinic, (i.e., will it be demolished or used for other purposes)?

The Traditional Council of Togiak is planning to turn the existing clinic into multi-use building, which will include the Traditional Council's office. Currently the Traditional Council's is too small and they are having to rent space additional space.

Site Selection Process

Describe your planning process for site selection. Does your selected site provide some special advantage in terms of long-term cost savings (e.g., making use of waste heat)? Describe how the lot size is appropriate for the proposed clinic, parking, easements, and utility layout (including on-site sanitation systems, if proposed). Will the site allow for future expansion for the clinic or similar programs?

Two sites were evaluated for the proposed clinic. One was a site directly adjacent to the main store building, and one was located on undeveloped land on the access road to the school. Given the size requirements for this clinic, and site and flooding concerns, it appears that the second site will provide the best land area. The site near the store will require the shared use of the existing parking area and it will require fill material to bring the site up above the level of documented seasonal flooding. The community is not sure that filling the depressions will alleviate the flooding problem. The flooding is a result of ice dams that occur during break-up in the slough. The alternate site is on a south sloping incline with good access from the community, from the developing housing area on the top of the hill, and from the airport. Its central location, its larger available area, and its location away from the seasonal flooding make it a suitable and preferable site for this facility. In January 2007, the clinic staff and the Traditional Council of Togiak agreed that the second site (near the new housing area) was the preferred choice. In summer 2007, a topographic/boundary survey and a preliminary geotechnical survey were performed at that sight.

Site Control and Documentation

The Denali Commission requires proof that you have legal control of the site, by deed or a 30-year lease. Do you have legal control of the site for the clinic? ☒ Yes ☐ No

If YES, please provide a copy of the deed or lease (and any other site control documents). ***Do not send original documents.***

If NO, please answer these questions:

If you don't have site control, when will you have it?

n/a

What has to be done before site control is secured? Explain any problems with completing the process.

n/a

Provide copies of any documents (i.e. letters of commitment from landowners, draft lease agreements, or other documents) which demonstrate that site control will transfer to you. Be sure to indicate the date that you will assume site control.

Lease agreements should include annual lease costs, and identify the lot and block numbers for the leased lands.

Site Plan / Site data / Community Map / Site photos

Provide a site plan and community map showing site location for the existing clinic and alternative new clinic sites. The site plan must be a scaled drawing, have a North arrow, show lot/block numbers, show the proposed clinic improvements, immediately adjacent structures, and utility (electric, gas, water, sewer, and phone) and road access (existing and proposed). If on-site sanitation is to be provided clearly show distances necessary to obtain a ADEC permit to construct (Class B or C water system as appropriate). Show where soil testholes have been excavated (or bored) and provide a log of the testholes and any soil testing data (sieve analysis, percolation tests, etc.). Topographic relief is important as it may impact construction of the clinic or access to the clinic site. Relatively flat terrain does not require depiction on the site plan.

The maps should illustrate the location of the clinic site and utilities in relation to the site, a site plan layout, and the position of the site in relation to airport, schools, offices, etc. For many communities, the maps prepared for all Alaska communities as part of the Department of Community and Regional Affairs Profile series are a useful basis for indicating location of the clinic or multi-use facility.

Are there any known environmental or archaeological concerns with developing the proposed clinic site?

There are no known environmental or archaeological concerns with developing the proposed clinic site.

How much fill material will be needed to develop the site? Where will the fill material come from?

3,000 cubic yards. This assumes a 20,000 square foot building pad and 20,000 square foot parking area and drive access. This also assumes the average depth is 2-feet. There is a gravel source in Togiak that has adequate material.

Are there any seasonal or climatic limitations on site and foundation construction?

Togiak is in a region of discontinuous permafrost, but no permafrost was not encountered during the preliminary soils investigation, though there is still a potential for permafrost at depths deeper than the test pits. The site a layer of peat ranging from four to ten feet in depths. Possible foundation types are discussed in the preliminary soils investigation. Flooding is not known to have occurred at the site and flooding potential seems minimal.

Are there any zoning or building code issues that may impact design, construction or operation of the clinic facility?

There are no know zoning or building code issues that may impact design, construction, or operation of the proposed clinic.

Provide photos of the proposed clinic sites.

Utility Hook-ups / Access Roads

Is your clinic served with piped water and sewer (or will be) ☒ Yes ☐ No

If NO, is the clinic served with a flush-n-haul system (or will be)? ☒ Yes (maybe, see below)

If the clinic is not served (or will not be served) with piped water and sewer or flush-n-haul, explain why:

There is no community sewer service in the area. The proposed clinic will have to operator an onsite septic system or a holding tank. The peat noticed in the preliminary soils investigation is not suitable for an onsite septic system. Further investigations will have to be done to determine if conditions to the west of the test pits, which ground is higher, would be adequate. If not, the **proposed** clinic may have to have a holding tank.

If your designated clinic site is *not* within 150 feet of all existing utility hookups and access roads, answer the following questions.

Identify which utilities and/or road connections are 150 feet or more from your designated site.

The proposed site may be served by a community water main and well. The community well is located approximately 1,800 east of the proposed clinic along Togiak Heights Road. All houses in the area are served by private wells. An onsite well is probably the most cost effective option for water service. For informational purposes a rough order magnitude cost estimate has been provide.

Explain why your community didn't choose a site with existing, convenient access. Attach maps and drawings as necessary to explain your special situation.

Several sites were looked at within the developed Togiak community. None of them were large enough for a clinic of this size. The most favorable alternative site would have to share parking with adjacent properties. There is also a problem with flooding within those parts of Togiak. The proposed clinic site is closer to the new and future expansion areas, which will make it centrally located. It is also away from potential flooding areas. The proposed site also has enough space to adequately the clinic and future facilities. The community is also planning to construct a new senior center and they would like to build it next to the clinic. If this happens they would like to combine funding the projects water service together to reduce costs.

Estimate how much it will cost to make the required utility and/or road connections. Identify who provided the estimate and **provide** documentation.

If it is decided to run the water service to the well house the rough order magnitude cost is around \$210,000.

Explain how you have obtained / will obtain the extra funding needed for the utility and/or road connections to the site. Include **correspondence** and other documentation

This will be provided by others.

Checklist of Attachments:

☐ Copy of the clinic site deed or lease (draft or executed), and other site control documentation

☒ Detailed clinic site plan

☒ Soil testhole data

☒ Community mapping

☒ Photos of the proposed clinic site

☒ Cost estimate information, mapping and other documentation associated with clinics more than 150 feet from existing utility hook-ups

INSERT COPY OF PROPOSED CLINIC SITE DEED



January 12, 2007

**Paul Morrison
ANTCH/DEHC
1901 Bragaw St., Suite 200
Anchorage, AK 99508**

Dear Mr. Morrison:

The clinic staff and the Traditional Council of Togiak council members agreed that the new site for the clinic be built up towards the new subdivision. The lot number is not yet definitive but the general area is below the little well house that belongs to the City of Togiak. Togiak Natives Ltd., board members also agreed that the new clinic be on higher ground and they have an idea of the location of the site.

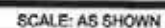
Thank you,

**Moses Kritz
President**

PROPOSED CLINIC SITE PLANS



A1



PROPOSED CLINIC PRELIMINARY SOILS INVESTIGATION



**PRELIMINARY
SUBSURFACE EXPLORATION**

TOGIAK CLINIC

TOGIAK, ALASKA

ENGINEERING



PLANNING



SURVEYING



August 22, 2007
W.O. D59146
Area 7
Report No. 4737

Mr. Paul Morrison
Alaska Native Tribal Health Consortium
1901 Bragaw Street, Suite 200
Anchorage, Alaska 99508-3440

Subject: Preliminary Subsurface Exploration
Togiak Clinic, Togiak, Alaska

Dear Mr. Morrison:

This letter presents the results of our preliminary subsurface exploration for the proposed Togiak Clinic site located in Togiak, Alaska (Figure A-1, Appendix A).

The purpose of this investigation was to determine subsurface soil and groundwater conditions at the site in order to provide preliminary options regarding foundations, earthwork, utility installation, and parking areas.

FIELD EXPLORATION

On July 19, 2007, six test pits were excavated across the proposed clinic site. The test pits were excavated to depths ranging from 12 to 15 feet and ended in competent mineral soils. The test pits were excavated using a Hitachi UH045 tracked excavator owned by the City of Togiak and operated by Mickey Atakitlig of Togiak, Alaska. A geologist supervised the test pit exploration and obtained samples of the representative soil layers.

Each test pit was located in the field measuring distances from existing topographic features. In addition, a hand-held Garmin Global Positioning System (GPS) 12 unit was used to record the locations. The accuracy of the GPS unit is dependent on several factors, including the number of satellites available and the position of the satellites. The test pit locations are shown on Figure A-2, Test Pit Location Map.

As the soil samples were recovered, they were visually classified and sealed in plastic bags to preserve the natural water content. The samples were then transported to NANA/DOWL Engineers' laboratory, Alaska Testlab, in accordance with ASTM 4220, for further testing to include visual classification, moisture content, and particle-size distribution tests.

SITE CONDITIONS

Surface. The site is located approximately $\frac{3}{4}$ of a mile east of Togiak Proper along Togiak Heights Road. The site is currently undeveloped and consists of a tundra surface covered with grass and small brush. Blueberry bushes were observed to be growing on the tussocks. The topography of the site is relatively level, however, a gentle incline with residential structures on top of the hill bounds the property along the east side. The south side of the site is bounded by Togiak Heights Road, and the north and west sides are undeveloped and relatively level.

Overhead electrical lines parallel Togiak Heights Road along the southern property boundary.

Subsurface. The subsurface soils across the site are generally consistent. Peat (PT) was observed in each of the test pits to depths ranging from four to ten feet, with deeper peat at the southern end of the site. Below the peat (PT), sandy silts (ML) and silty sands and gravels (SM, GM) were observed.

The native silts (ML) have varying amounts of sand and exhibit no to low plasticity. The silts are highly frost susceptible (F4). In Test Pit 5, a six inch layer of lean clay (CL) was observed at a depth of eight feet. The *in situ* moisture contents of the silts range from 49 to 56 percent.

Underlying the peat and silts, silty gravels with sand (GM) were encountered at depths ranging from 4 to 14 feet across the site and contain varying amounts of sand, silt, and clay. These soils have moderate to high frost susceptibility (F3-F4). The *in situ* moisture content ranges from 10 to 16 percent.

Silty sand (SM) with gravel was observed beneath the silts and clays at a depth of 8.5 feet in Test Pit 5. The sands contain low plasticity fines and are moderately frost susceptible (F2). The *in situ* moisture content of this soil was measured to be 11 percent.

Groundwater. Groundwater was observed in four of the test pits while excavating at depths of three to eight feet and was not observed while excavating the remaining test pits. It appears that deeper groundwater is at the southern end of the site.

The groundwater level observed while excavating is shown on each test pit log and summarized in Table 1 below. "N.O." indicates the groundwater table was "not observed" while the test pit was excavated.

Table 1: Observed Groundwater Levels

Test Pit No.	While Excavating (July 19, 2007)
	Depth to Water (ft)
1	4
2	3.5
3	N.O.
4	N.O.
5	3
6	8

Permafrost. Togiak is located in a region of discontinuous permafrost. No permafrost was encountered in any of the test pits nor is any known to exist in the general vicinity of the site. In addition, no unusually cold soils were observed in the samples below the typical depth of the active layer, which freezes and thaws each year. However, test pits do not extend to sufficient depths to rule out the potential for permafrost.

Flooding. Flooding is not known to have occurred at the site. Based on local accounts, the flood marker for the city was located at the city office building in Togiak Proper near sea level; however, it was not present at the time of the investigation.

CONCLUSIONS

Site Development. At this time, the clinic has not been sited on the property and no site plan has been developed. It is our understanding that the clinic would be a subregional clinic of about 15,000 square feet with a gravel parking area. The following foundation considerations are based on this limited information.

Foundations. There are a number of foundation systems that could be used for this project. The choice of which method to use is a matter of economics, ease of installation, long-term performance, as well as the construction schedule.

Based on the observed site conditions, it appears that there are several options for the clinic foundation system depending on the approach to earthwork. If all of the peat and organic silt are removed from below the building footprint, and replaced with properly compacted backfill, the building could be supported on a shallow foundation system, such as spread footings, space frame, or post and pad. If the peat is not removed, the building could be constructed on a deeper foundation system, such as driven piles with a structural floor slab.

Shallow Foundation System

A shallow foundation system allows the building to be supported on the near surface soils. As the site has deep peat deposits that are easily compressible, the foundation system must be founded on soils suitable for bearing. Therefore, all of the peat and organic silt must be removed from the site and replaced with approved backfill. The width of the excavation should be at least ten feet wider than the building footprint.

The community has a material site. It is not known if this material is suitable for use. Samples of the material have been requested for analysis but to date no samples have been received.

- **Earthwork.** The building excavation should occur in late spring/early summer when the ground is still frozen. Depending on the size/weight of the equipment, a one to two-foot gravel pad may still be necessary to provide adequate support for the equipment. Construction in mid to late summer or early fall when the ground is fully thawed is not advisable. To assist with the construction schedule, backfill material could be stockpiled near or on the site in the summer or fall and then thawed prior to use.
- **Spread Footings/Post and Pad.** If one of these foundation systems is selected, the footings or pads should be founded below the active layer, a depth of about four to five feet below existing ground. Pads would be a minimum of three feet square and the posts rigidly connected to the pad to resist frost jacking forces. It is important that the connection between the post and building be adjustable to allow re-leveling should movements occur.
- **Space Frame.** The building could be constructed on a space frame foundation system. A space frame is a lightweight metal frame, similar to a truss that uses a series of interlocking struts and hubs to support the structure. Each hub would be situated on a two-foot square wooden pad placed on the gravel pad. The building itself is elevated about three feet above the ground. Movement associated with seasonal freeze/thaw cycles will occur and there is a potential for settlement of any loose surficial soils. The space frame system is designed to keep the building on a level plane even when settlement or movement occurs. This system will require periodic re-leveling over the life of the building. Helical piers could be used in conjunction with the space frame system to help resist uplift loads.

Deep Foundation System

A deeper foundation system allows the building loads to be transferred to the soils at depth below the peat and minimizes the earthwork requirements. Given the deep peat deposits, a driven pipe or H-pile foundation may be a feasible option for this site.

A deep foundation system will require a gravel pad to be constructed in advance of pile installation activities. The building pad could be constructed on the cleared tundra surface with a minimum of two feet of gravel fill. A stabilization geotextile should be placed between the gravel and the tundra.

The building could be supported on a pipe pile foundation installed into the gravelly soils at depth. We estimate that the piles would have about 35 feet of embedment. Given the gravelly soils at depth, the piles would likely have to be extra strong heavy wall pipe with hardened driving shoes to prevent pile damage during driving.

There was insufficient subsurface information at depth on which to develop estimated pile capacities. In addition, no deep subsurface information was available from other projects previously completed within the community.

- **Earthwork.** The only excavation anticipated with a pile foundation is some general grading in the building area and the excavation necessary for utilities. The site should be cleared of any brush or small trees, but the tundra surface allowed remain in place. The building pad construction should occur in late spring/early summer when the ground is still frozen.
- **Building Pad Consolidation.** When the frozen peat thaws in the summer, the peat will consolidate and settle due to the weight of the gravel pad. Re-leveling of the pad should be expected during the summer and then, at a minimum, on an annual basis.

Drainage. Whatever is done to develop this site must include a plan to grade the site for drainage. Surface drainage should be designed to carry precipitation and snowmelt rapidly away from the building, especially in the areas adjacent to subgrade portions of the building.

Dewatering. The water table may be an issue during earthwork activities. Water is likely to be present during installation of utilities and any excavations that extend more than three or four feet below existing ground. Dewatering may be required.

Seasonal Frost. Seasonal frost could penetrate to a depth of at least five feet or more on this site in areas that remain free of snow. Any connections, such as stairways or handicap ramps, should be flexible enough to accept the movements that will occur due to seasonal frost action.

Utility Trench Fill. A suitable granular bedding material should be placed and compacted to a depth of at least six inches below all utility lines. The remainder of the trench should be backfilled with properly compacted and approved backfill. The utilities should not be founded on organics or organic silt.

Traffic Areas. Given the depth of peat across the site, traffic areas could be constructed as an overlay of gravel on the tundra surface. A separation geotextile would be placed between the gravel and the tundra. For cost estimating, a minimum of two feet of gravel could be assumed. Annual grading due to settlement and to prevent ponding will likely be required. The placement of gravel for roads and parking areas should occur in the late winter or spring when the active layer is still frozen.

Mr. Paul Morrison
Alaska Native Tribal Health Consortium
August 22, 2007
Page 5

Additional Information. Once the site development plan has been determined, an exploration program should be implemented to supplement the current information and to provide design recommendations. Test borings should be drilled to sufficient depths to determine pile capacities.

Sincerely,
NANA/DOWL Engineers



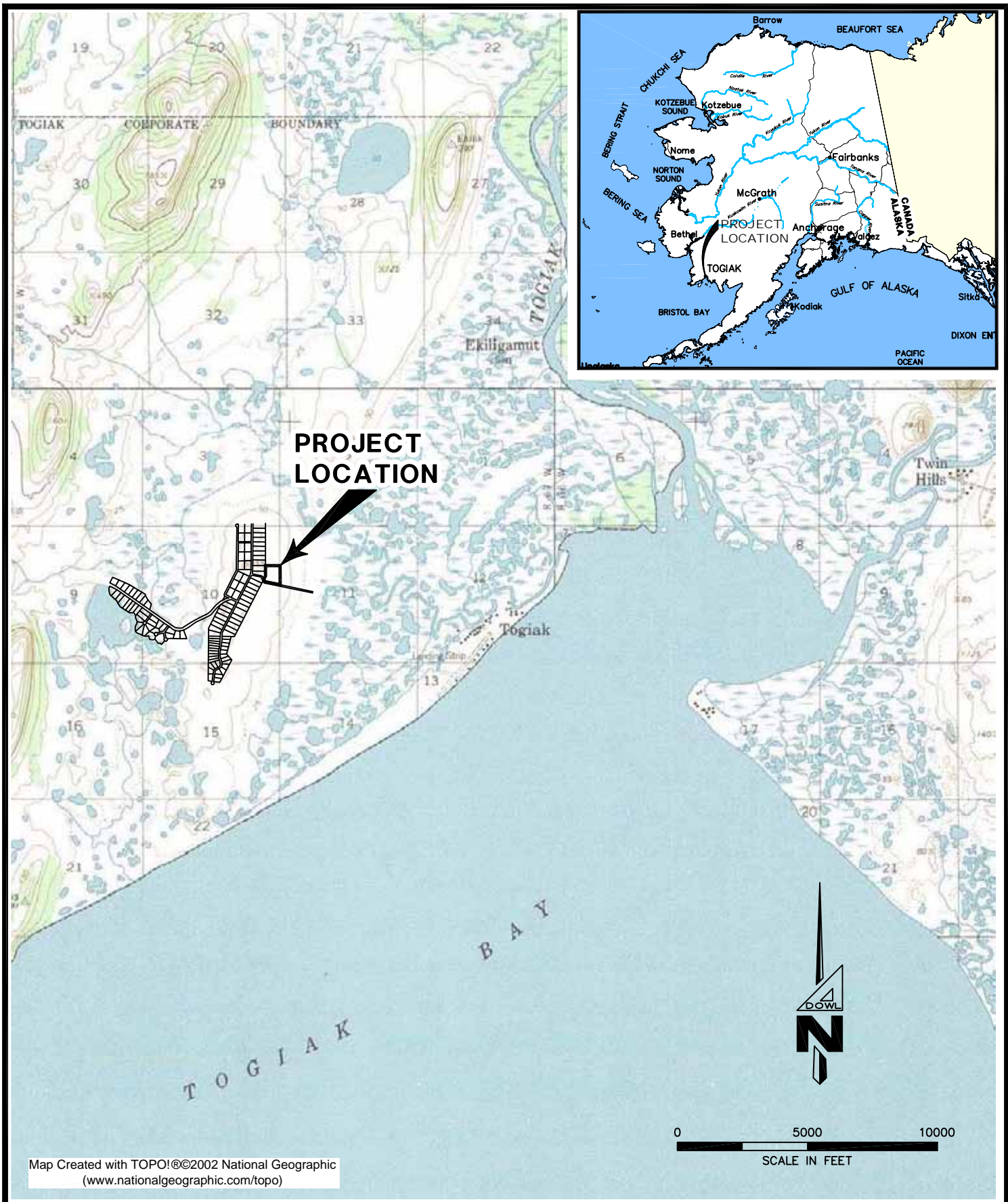
Maria E. Kampson, P.E.
Geotechnical Engineer

Attachments: As stated

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APPENDIX A

LOCATION MAPS



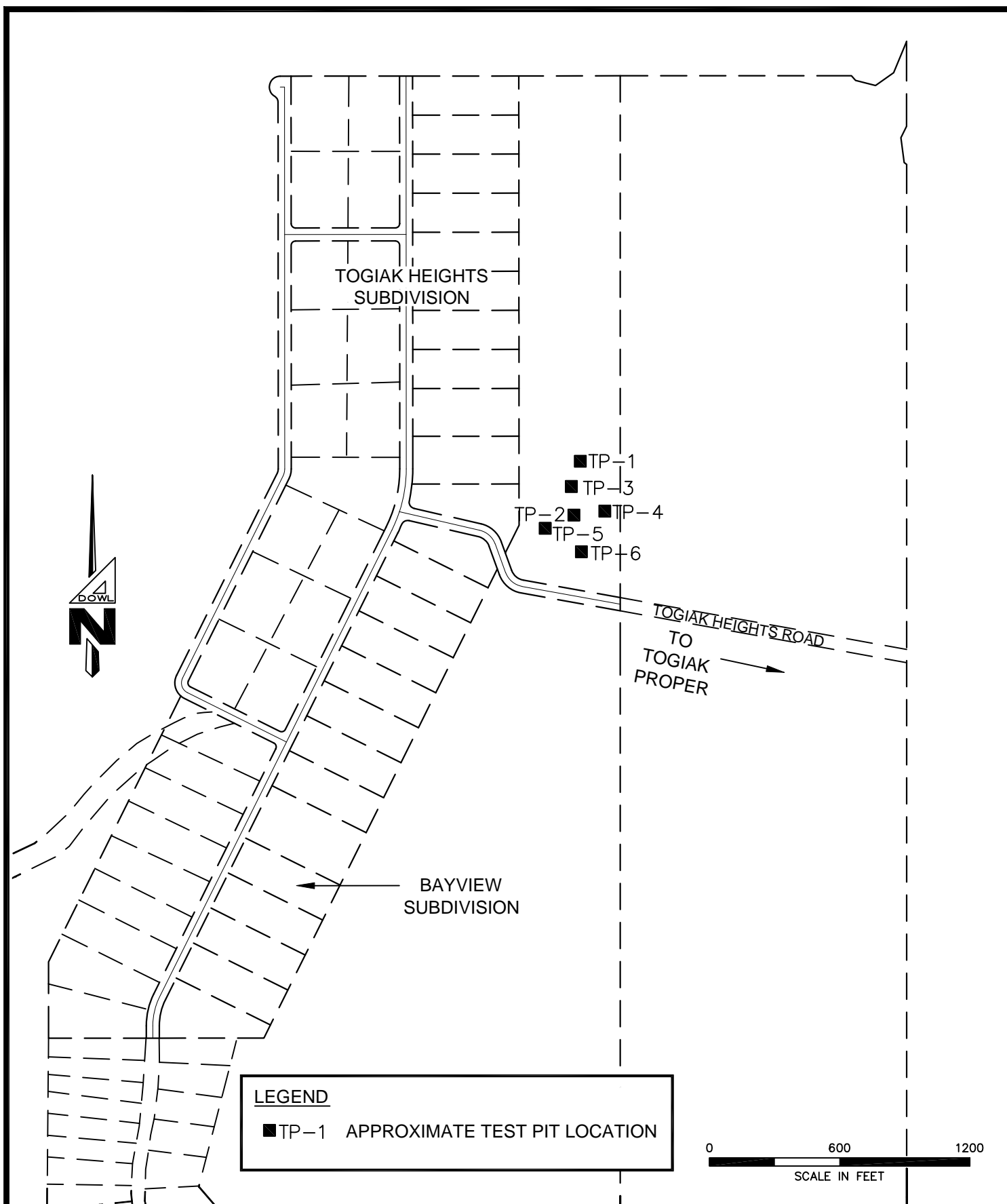
P: \Projects\D59146\GE0\GTB-TOGIAK.dwg AUG 21 2007 10:27:43 (ERP)

SCALE: AS SHOWN



Vicinity Map
TOGIAK HEALTH
CLINIC
Togiak, Alaska

FIGURE A-1



P:\Projects\D59146\GEO\GTB-TOGIAK.dwg AUG 22 2007 10:08:03 (ERP)

SCALE: AS SHOWN

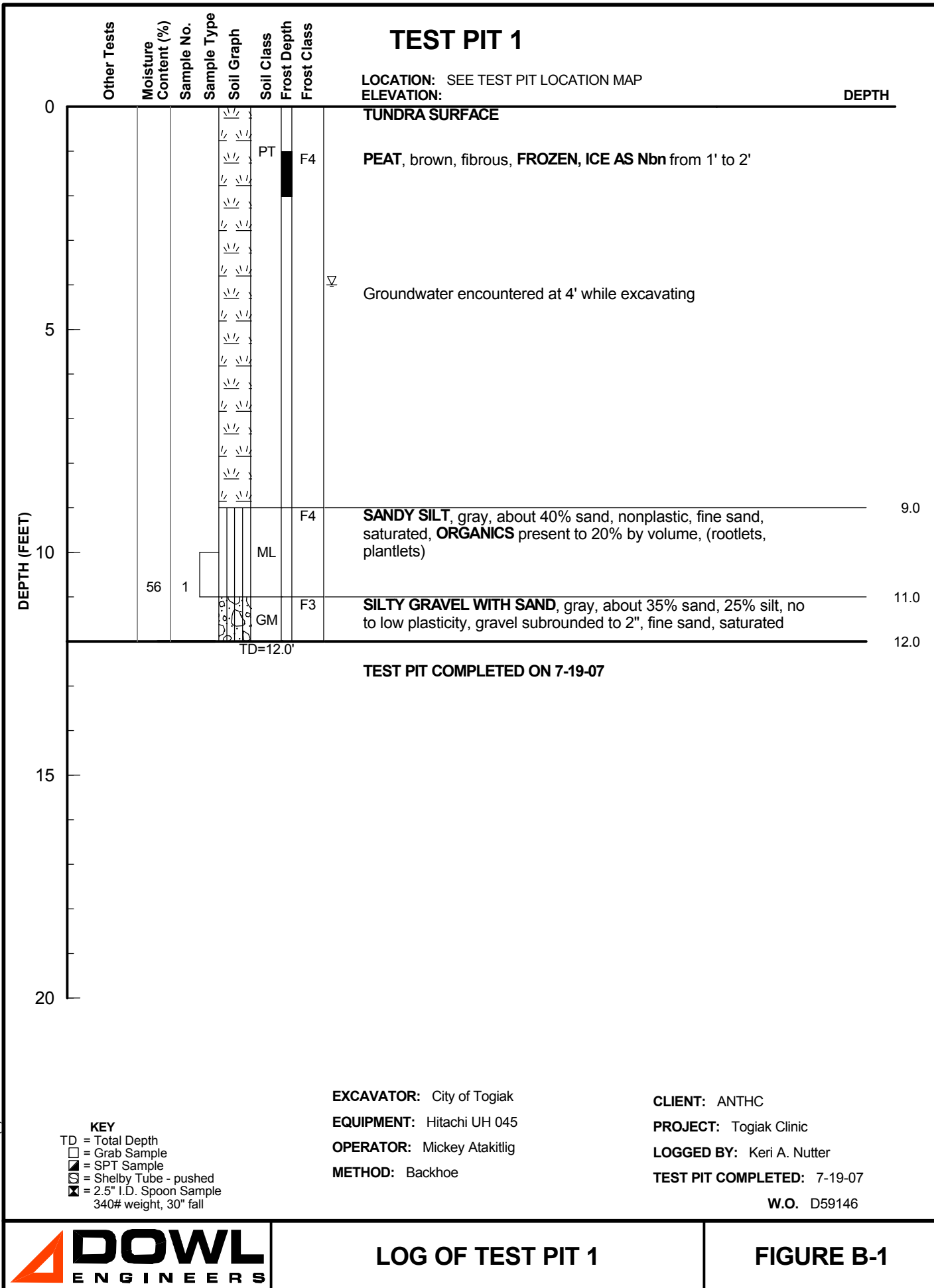


Test Pit Location Map
TOGIAK HEALTH
CLINIC
Togiak, Alaska

FIGURE A-2

APPENDIX B

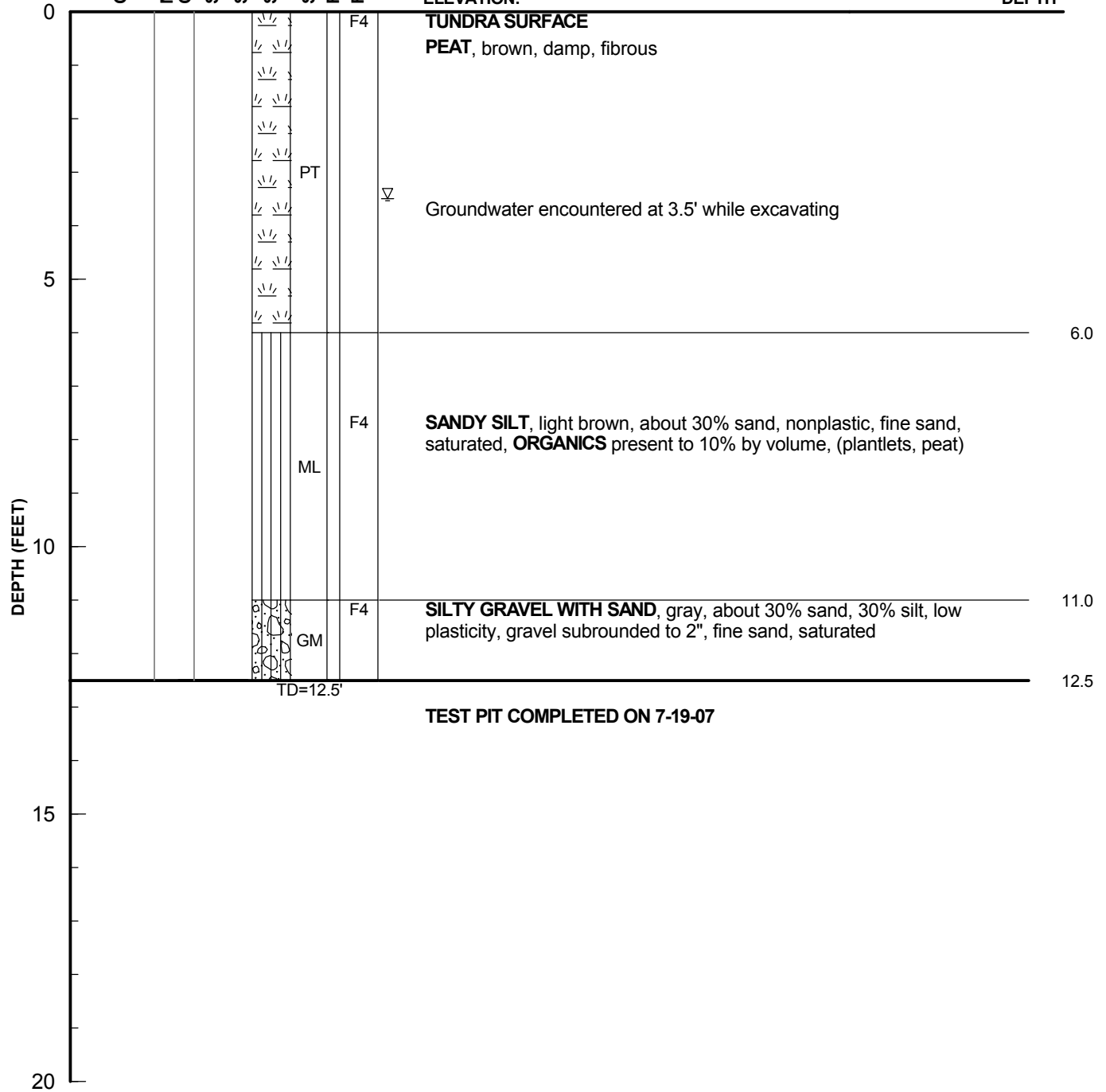
TEST PIT LOGS AND DESCRIPTIVE GUIDE



TEST PIT 2

LOCATION: SEE TEST PIT LOCATION MAP
ELEVATION:

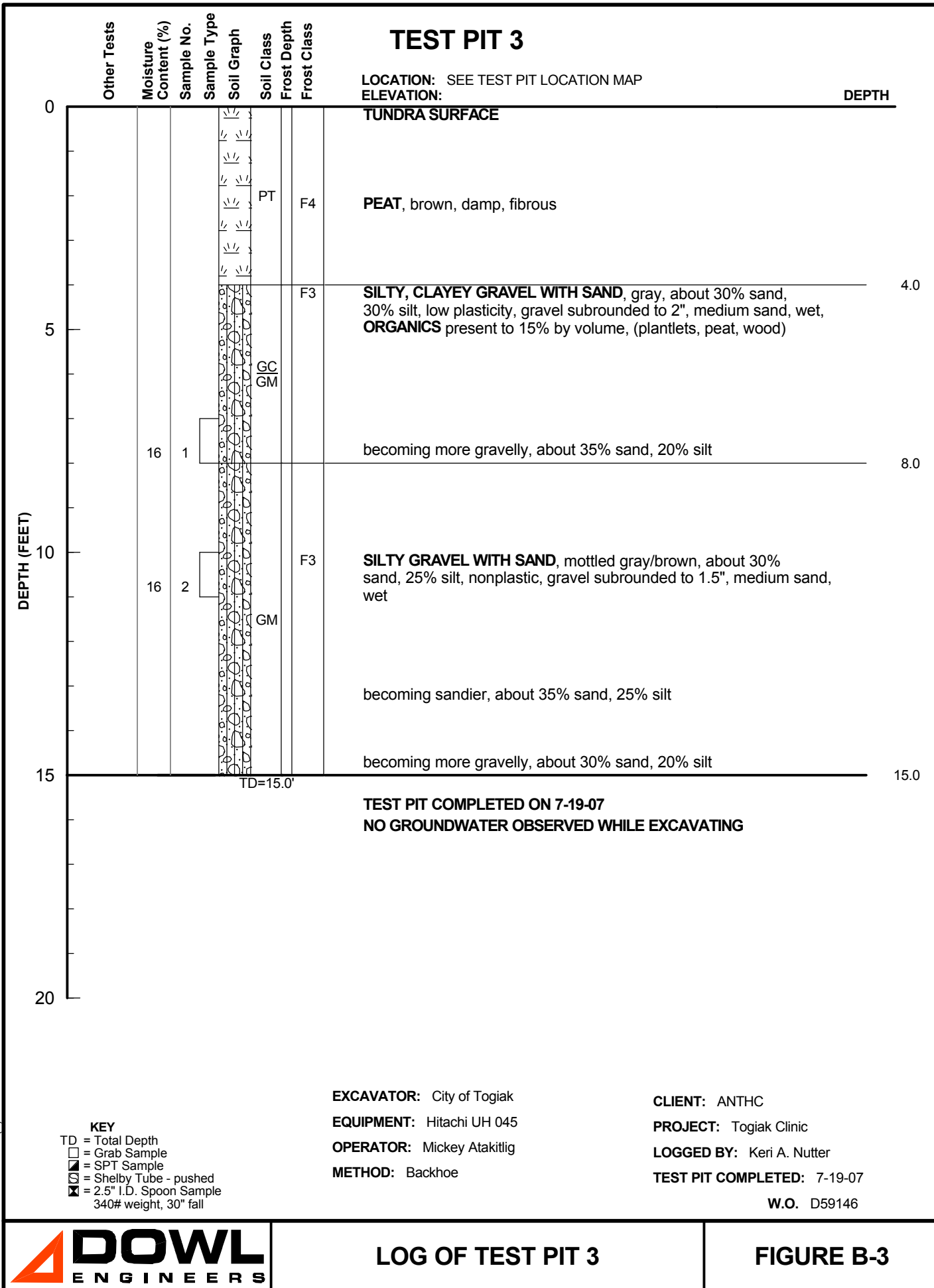
DEPTH



KEY
 TD = Total Depth
 □ = Grab Sample
 ▣ = SPT Sample
 ▤ = Shelby Tube - pushed
 ▥ = 2.5" I.D. Spoon Sample
 340# weight, 30" fall

EXCAVATOR: City of Togiak
EQUIPMENT: Hitachi UH 045
OPERATOR: Mickey Atakitlig
METHOD: Backhoe

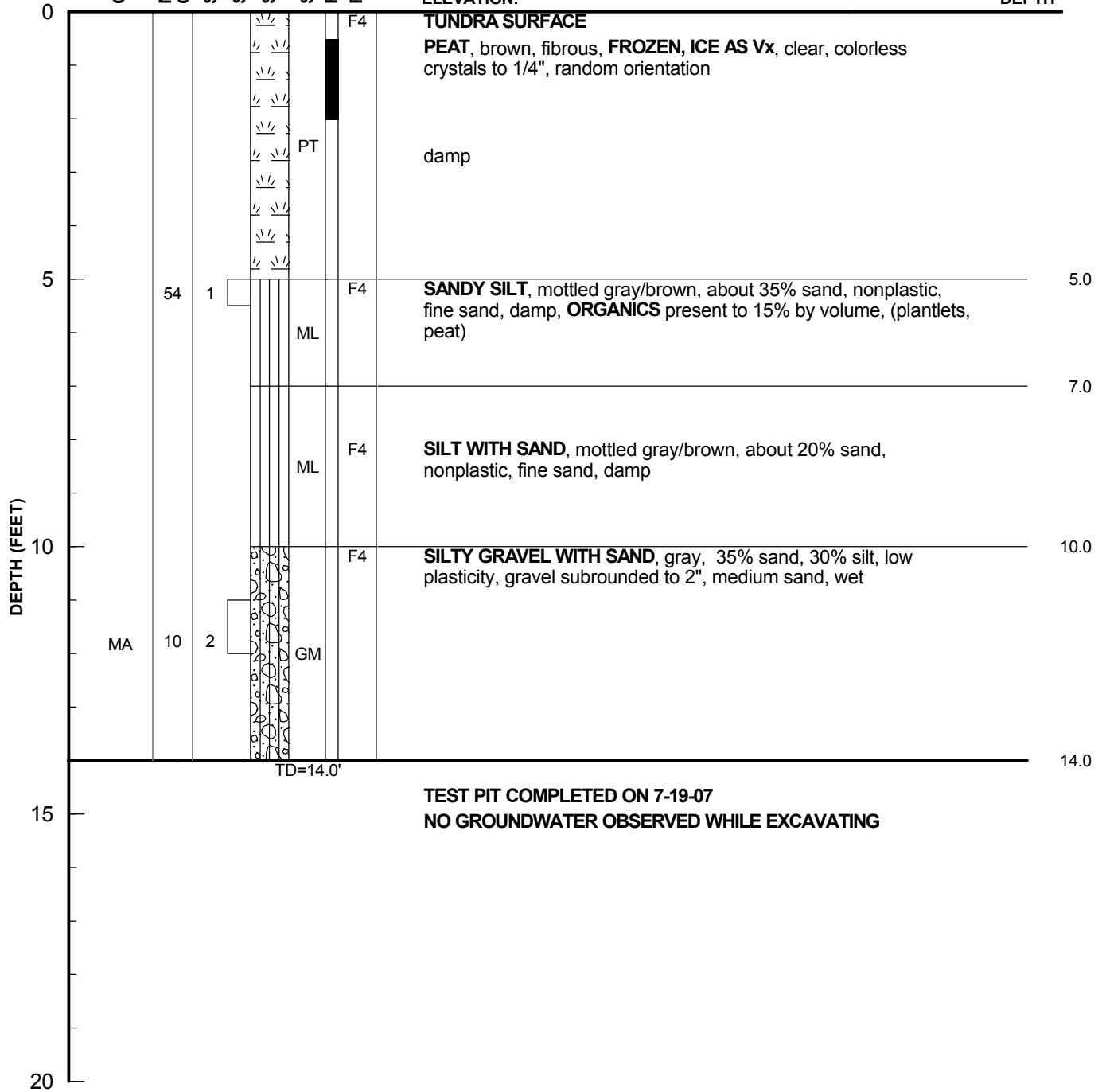
CLIENT: ANTHC
PROJECT: Togiak Clinic
LOGGED BY: Keri A. Nutter
TEST PIT COMPLETED: 7-19-07
W.O. D59146



TEST PIT 4

LOCATION: SEE TEST PIT LOCATION MAP
ELEVATION:

DEPTH



KEY
MA = Mechanical Analysis
TD = Total Depth
□ = Grab Sample
▣ = SPT Sample
▤ = Shelby Tube - pushed
▥ = 2.5" I.D. Spoon Sample
340# weight, 30" fall

EXCAVATOR: City of Togiak
EQUIPMENT: Hitachi UH 045
OPERATOR: Mickey Atakitlig
METHOD: Backhoe

CLIENT: ANTHC
PROJECT: Togiak Clinic
LOGGED BY: Keri A. Nutter
TEST PIT COMPLETED: 7-19-07
W.O. D59146



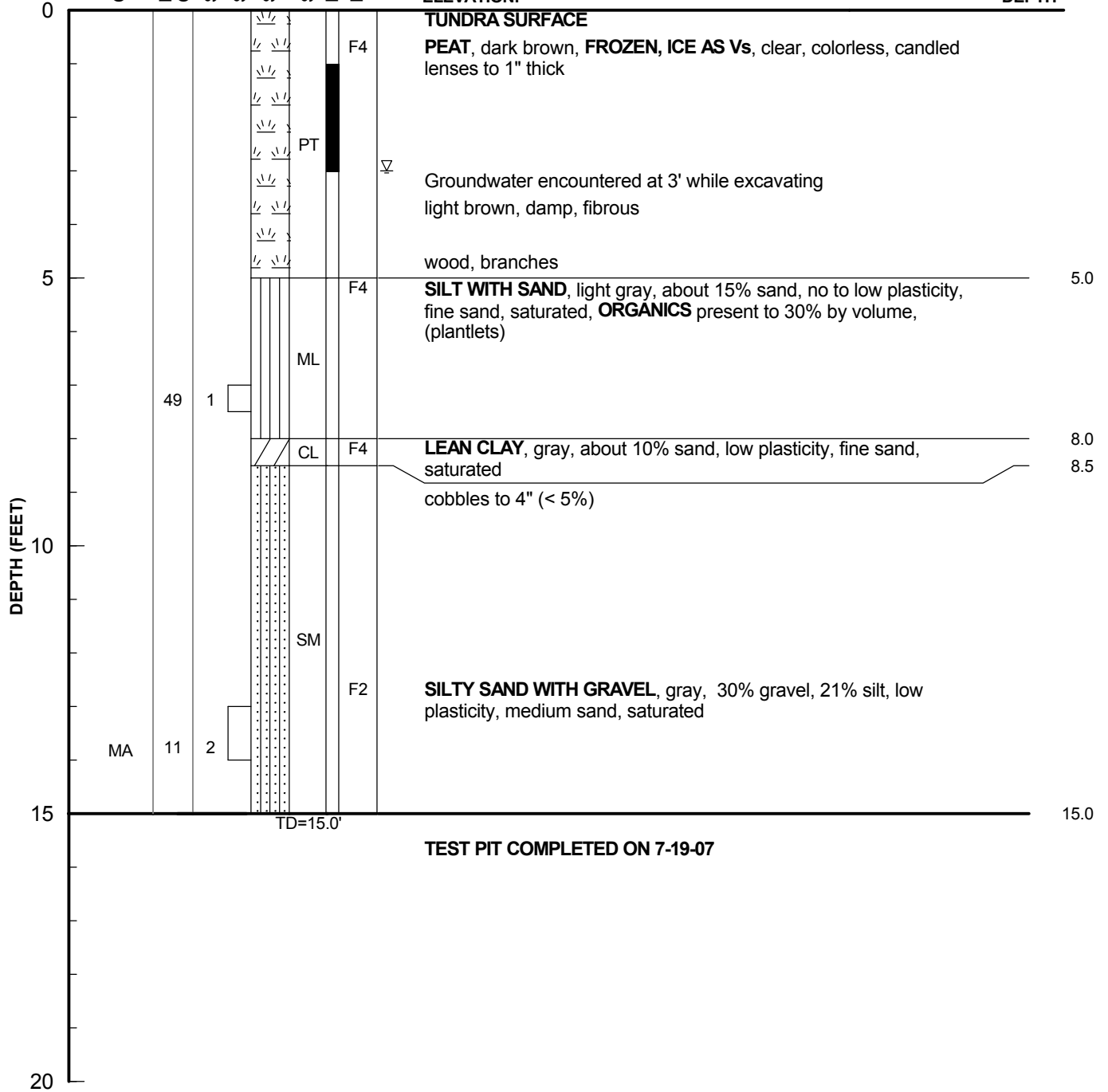
LOG OF TEST PIT 4

FIGURE B-4

TEST PIT 5

LOCATION: SEE TEST PIT LOCATION MAP
ELEVATION:

DEPTH



KEY
MA = Mechanical Analysis
TD = Total Depth
□ = Grab Sample
▣ = SPT Sample
▤ = Shelby Tube - pushed
▥ = 2.5" I.D. Spoon Sample
340# weight, 30" fall

EXCAVATOR: City of Togiak
EQUIPMENT: Hitachi UH 045
OPERATOR: Mickey Atakitlig
METHOD: Backhoe

CLIENT: ANTHC
PROJECT: Togiak Clinic
LOGGED BY: Keri A. Nutter
TEST PIT COMPLETED: 7-19-07
W.O. D59146



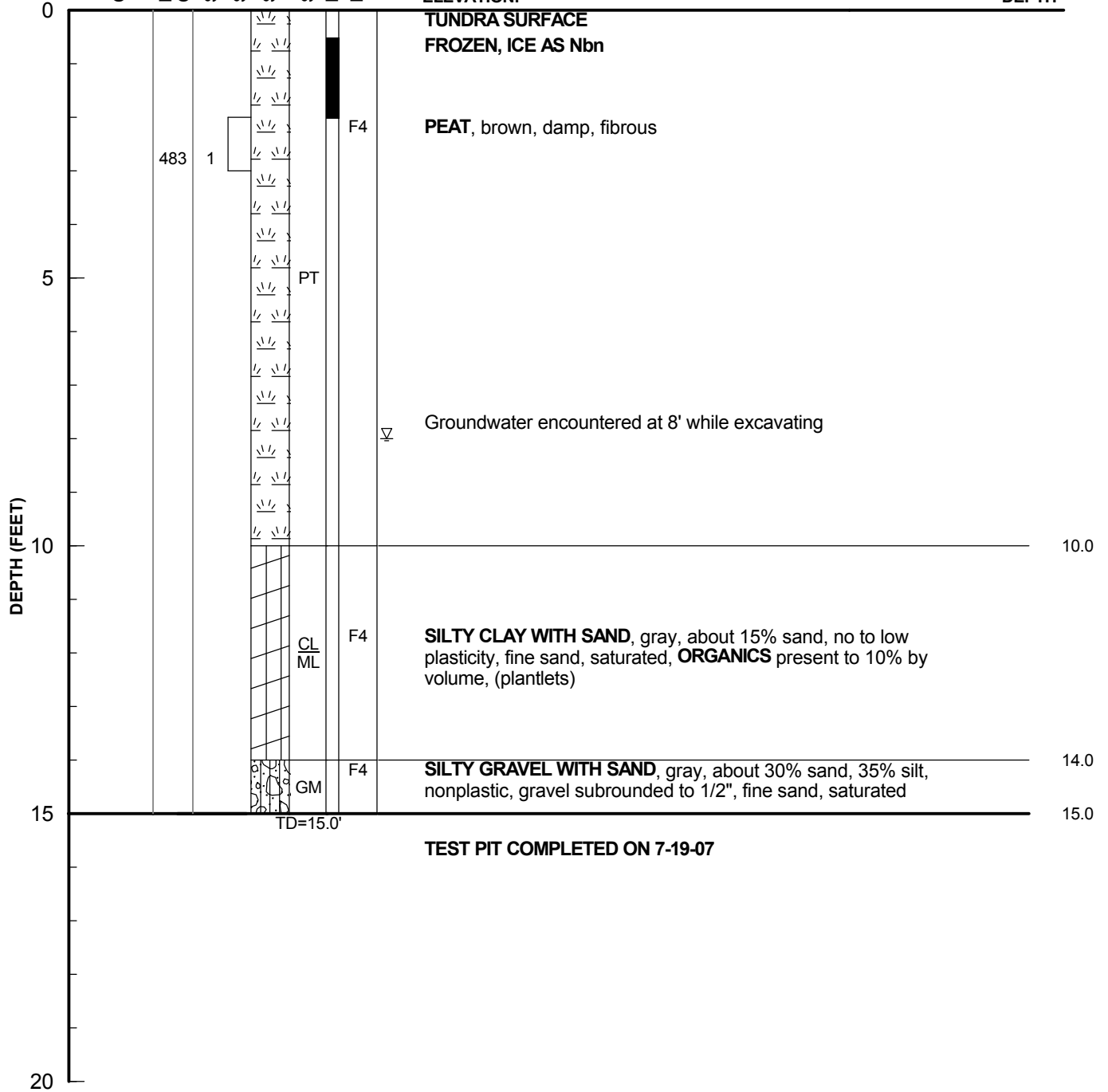
LOG OF TEST PIT 5

FIGURE B-5

TEST PIT 6

LOCATION: SEE TEST PIT LOCATION MAP
ELEVATION:

DEPTH



KEY
 TD = Total Depth
 □ = Grab Sample
 ▨ = SPT Sample
 ▩ = Shelby Tube - pushed
 ▩ = 2.5" I.D. Spoon Sample
 340# weight, 30" fall

EXCAVATOR: City of Togiak
EQUIPMENT: Hitachi UH 045
OPERATOR: Mickey Atakitlig
METHOD: Backhoe

CLIENT: ANTHC
PROJECT: Togiak Clinic
LOGGED BY: Keri A. Nutter
TEST PIT COMPLETED: 7-19-07
W.O. D59146



LOG OF TEST PIT 6

FIGURE B-6

TEST PIT LOG - DESCRIPTIVE GUIDE

Soil Descriptions - The soil description on the pit log is based on an interpretation of the field and laboratory visual classifications, along with the results of laboratory particle-size distribution analyses and Atterberg Limits tests which may have been performed.

The soil classification is based on ASTM Designation D2487 "Standard Test Method for Classification of Soils for Engineering Purposes" and ASTM D2488 "Standard Practice for Description and Identification of Soils (Visual - Manual Procedure)" and the soil frost classification is based on the system developed by the U.S. Army Corps of Engineers. Outlines of these classification procedures are presented on the following pages.

The soil color is the subjective interpretation of the individual logging the test pit.

The plasticity of the minus No. 40 fraction of the soil is described and the fine-grained soils are identified from manual tests using the following table as a guide:

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	none to low	slow to rapid	low or thread cannot be formed
CL	medium to high	none to slow	medium
MH	low to medium	none to slow	low to medium
CH	high to very high	none	high

Plasticity Description	Criteria
Nonplastic	A 1/8" (3.2mm) thread cannot be rolled at any water content.
Low	A thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

Laboratory Atterberg Limits tests usually are performed on a few of the plastic soils and results are reported on the test pit log. These laboratory tests are performed in accordance with ASTM D4318 "Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils."

The shape of the gravel particles is described based on this guide:

Angular:	particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular:	particles are similar to angular but have somewhat rounded edges.
Subrounded:	particles exhibit nearly plane sides but have well-rounded corners and edges.
Rounded:	particles have smoothly curved sides and no edges.

The size of gravel and sand particles is described using this guide:

	Gravel	Sand
Coarse:	Passes 3" (75 mm) sieve, retained on 3/4" (19 mm) sieve	Passes No. 4 sieve, retained on No. 10 sieve
Medium:	N/A	Passes No. 10 sieve, retained on No. 40 sieve
Fine:	Passes 3/4" (19 mm) sieve, retained on No. 4 sieve	Passes No. 40 sieve, retained on No. 200 sieve

The soil moisture is described as:

dry:	powdery, dusty, no visible moisture.
damp:	enough moisture to affect the color of the soil; moist.
wet:	water in pores but not dripping; capillary zone above water table.
saturated:	dripping wet, contains significant free water, or sampled below water table.

Soil Layer Boundaries - Generally, there is a gradual transition from one soil type to another in a natural soil deposit, and it is difficult to determine accurately the boundaries of the soil layers.

- A *diagonal line* between soil layers on the graphic pit log indicates the general region of transition from one soil layer to another.
- A *horizontal line* between soil layers indicates a relatively distinct transition between soil types was observed in the recovered samples and from a visual examination of the pit walls.

Sample Interval - The sample interval is shown graphically on the test pit log and generally is accurate to about 0.5 foot (0.15 meter).

Frost Depth and Soil Temperatures - If frozen ground is encountered during excavating, the interval of frozen soil is shown graphically on the test pit log. Generally, the temperature of a few soil samples is measured and shown on the pit log. These sample temperatures only give a qualitative indication of the *in situ* soil temperatures. The temperature of samples can be influenced significantly by the ambient air temperature.

Soil Moisture Content - Generally, laboratory soil moisture content tests are performed on all recovered samples. Only about 30 grams of the minus No. 4 material typically is used for the moisture content test, so results reported on the log may not reflect accurately the *in situ* moisture content of gravelly soils.

Groundwater - The depth to groundwater observed during excavating generally is shown on the test pit log. The depth to groundwater observed during excavating can differ significantly from the depth to the actual groundwater table, particularly in fine-grained soils.

Grab Samples - Grab samples are obtained from the distinct soil layers. The sample depth and interval indicated on the test pit log should be considered an approximation.

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES
ASTM DESIGNATION: D2487
Based on the Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A			Soil Classification	
Coarse-Grained Soils	Gravels	Group Symbol	Group Name ^B	Group
More than 50% retained on #200 sieve	Gravels	Cu ≥ 4 and 1 ≤ Cc ≤ 3 ^E	Well-graded gravel ^F	GW
	More than 50% of coarse fraction retained on #4 sieve	Less than 5% fines ^C	Poorly graded gravel ^F	GP
Sands	Gravel with Fines	Fines classify as ML or MH	Silty gravel ^{F,G,H}	GM
	More than 12% fines ^C	Fines classify as CL or CH	Clayey gravel ^{F, G, H}	GC
50% or more of coarse fraction passes #4 sieve	Clean Sands	Cu ≥ 6 and 1 ≤ Cc ≤ 3 ^E	Well-graded sand ^I	SW
	Less than 5% fines ^D	Cu < 6 and/or 1 > Cc > 3 ^E	Poorly graded sand ^I	SP
Fine-Grained Soils	Sands with Fines	Fines classify as ML or MH	Silty Sand ^{G,H,I}	SM
	More than 12% fines ^D	Fines classify as CL or CH	Clayey Sand ^{G,H,I}	SC
50% or more passes the #200 sieve	Silts and Clays	PI > 7 and plots on or above "A" line ^J	Lean Clay ^{K,L,M}	CL
	Liquid limit less than 50	PI < 4 or plots below "A" Line ^J	Silt ^{K,L,M}	ML
Silts and Clays	Organic	Liquid limit - oven dried <0.75	Organic Clay ^{K,L,M,N}	OL
	Inorganic	Liquid limit - not dried	Organic silt ^{K,L,M,O}	OL
Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	Fat clay ^{K,L,M}	CH
	Organic	PI plots below "A" line	Elastic silt ^{K,L,M}	MH
Highly organic soils	Primarily organic matter, dark in color, and organic odor	Liquid limit - oven dried <0.75	Organic clay ^{K,L,M,P}	OH
		Liquid limit - not dried	Organic clay ^{K,L,M,Q}	OH
			Peat	PT

A Based on the material passing the 3-in. (75mm) sieve.

B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

C Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

D Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt

E $C_u = \frac{D_{60}}{D_{10}}$ $C_c = \frac{(D_{30})^2}{D_{10} D_{60}}$

F If soil contains ≥ 15% sand, add "with sand" to group name.

G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

H If fines are organic, add "with organic fines" to group name.

I If soil contains ≥ 15% gravel, add "with gravel" to group name.

J If Atterberg Limits plot in hatched area, soil is a CL-ML, silty clay.

K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.

L If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.

M If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

N PI ≥ 4 and plots on or above "A" line.

O PI < 4 or plots below "A" line.

P PI plots on or above "A" line.

Q PI plots below "A" line.

DESCRIPTION OF FROZEN SOILS (Visual-Manual Procedure) ASTM Designation: D4083

Part I Description of Soil Phase							Classify Soil Phase by ASTM D2487 or D2488						
Group Symbol	Description	Subgroup			Field Identification								
		Description	Symbol		Identify by visual examination. To determine presence of excess ice, use procedures under Note 2 and hand magnifying lens as necessary. For soils not fully saturated, estimate degree of ice saturation; medium, low. Note presence of crystals or of ice coatings around larger particles.								
Part II Description of Frozen Soil	Segregated ice is not visible by eye	N	Poorly bonded or friable	Nf	For ice phase, record the following when applicable: Location Structure Orientation Color Thickness Size Length Shape Hardness Pattern of arrangement								
			No excess ice Well-bonded Excess ice	Nb		Nbn Nbe							
		V	Individual ice crystal or inclusions	Vx									
			Ice coatings on particles	Vc									
			Random or irregularly oriented ice formations	Vr									
Part III Description of Substantial Ice	Segregated ice is visible by eye (ice 1-inch (25 mm) or less in thickness)	ICE	Stratified or distinctly oriented ice formations	Vs	Estimate volume of visible segregated ice present as percentage of total sample volume.								
			Uniformly distributed ice	Vu									
			Ice with soil inclusions	ICE + Soil Type		Designate material as ICE (Note 3) and use descriptive terms as follows, usually one item from each group, where applicable: Hardness HARD SOFT [of mass, not individual crystals] Color (Examples): COLORLESS GRAY BLUE							
			Ice without soil inclusions	ICE			Structure (Note 4) CLEAR CLOUDY POROUS CANDLED GRANULAR STRATIFIED Admixtures (Examples) CONTAINS FEW THIN SILT INCLUSIONS						

- Note 1: Frozen soils in the N group may, on close examination, indicate presence of ice within the voids of the material by crystalline reflections or by a sheen on fractured or trimmed surfaces. The impression received by the unaided eye, however, is that none of the frozen water occupies space in excess of the original voids in the soil. The opposite is true of frozen soils in the V group.
- Note 2: When visual methods may be inadequate, a simple field test to aid in evaluation of the volume of excess ice can be made by placing some frozen soil in a small jar, allowing it to melt, and observing the quantity of supernatant water as a percentage of total volume.
- Note 3: Where special forms of ice such as hoarfrost can be distinguished, more explicit description should be given.
- Note 4: Observer should be careful to avoid being misled by surface scratches or frost coating on the ice.

DEFINITIONS

- Ice coatings on Particles - discomible layers of ice found on or below the larger soil particles in a frozen soil mass.
- Ice Crystal - a very small individual ice particle visible in the face of a soil mass. Crystals may be present alone or in combination with other ice formations.
- Clear Ice - ice that is transparent and contains only a moderate number of air bubbles.
- Cloudy Ice - ice that is translucent or relatively opaque due to the content of air or for other reasons, but which is essentially sound and impervious.
- Porous Ice - ice that contains numerous voids, usually interconnected and usually resulting from melting at air bubbles or along crystal interfaces from presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural unity.
- Candled Ice - ice that has rotted or otherwise formed into long columnar crystals, very loosely bonded together.
- Granular Ice - ice that is composed of coarse, more or less equidimensional crystals weakly bonded together.
- Ice Lenses - lenticular ice formations in soil occurring essentially parallel to each other, generally normal to the direction of heat loss, and commonly in repeated layers.
- Ice Segregation - the growth of ice within soil in excess of the amount that may be produced by the in-place conversion of the original void moisture to ice. Ice segregation occurs most often as distinct lenses, layers, veins, and masses, commonly, but not always, oriented normal to the direction of heat loss.
- Well-Bonded - a condition in which the soil particles are strongly held together by the ice so that the frozen soil possesses relatively high resistance to chipping or breaking.
- Poorly-Bonded - a condition in which the soil particles are weakly held together by the ice so that the frozen soil has poor resistance to chipping and breaking.
- Thaw Stable - the characteristics of frozen soils that, upon thawing, do not show loss of strength in comparison to normal, longtime thawed

FROST DESIGN SOIL CLASSIFICATION

Frost ² Group	Kind of Soil	Percentage Finer than 0.02 mm by Weight	Typical Soil Types Under Unified Soil Classification System
NFS ³	(a) Gravels Crushed stone Crushed rock	0 to 1.5	GW and GP
	(b) Sands	0 to 3	SW and SP
PFS ⁴ (MOA NFS) (MOA F2)	(a) Gravels Crushed stone Crushed rock	1.5 to 3	GW and GP
	(b) Sands	3 to 10	SW and SP
S1 (MOA F1)	Gravelly soils	3 to 6	GW, GP, GW-GM, and GP-GM
S2 (MOA F2)	Sandy soils	3 to 6	SW, SP, SW-SM, and SP-SM
F1	Gravelly soils	6 to 10	GM, GW-GM, and GP-GM
F2	(a) Gravelly soils	10 to 20	GM, GW-GM, and GP-GM
	(b) Sands	6 to 15	SM, SW-SM, and SP-SM
F3	(a) Gravelly soils	Over 20	GM and GC
	(b) Sands, except very fine silty sands	Over 15	SM and SC
	(c) Clays, PI>12		CL and CH
F4	(a) All silts	Over 15	ML and MH
	(b) Very fine silty sands		SM
	(c) Clays, PI>12		CL and CL-ML
	(d) Varved clays and other fine-grained, banded sediments		CL, ML, CH and SM

¹ Berg, Richard and Thadeus Johnson, "Revised Procedure for Pavement Design Under Seasonal Frost Conditions," Special Report 83-27, U.S. Army Corps of Engineers, Cold Research and Engineering Laboratory, September 1983.

² Corps of Engineers Frost groups directly correspond to the Municipality of Anchorage soil frost classification groups, except as noted.

³ Non Frost-Susceptible.

APPENDIX C

LABORATORY TESTING RESULTS

Location: Test Pit 4

Sample 2

Depth 11' - 12'

Engineering Classification: Silty GRAVEL with Sand, GM

Frost Classification: Not Measured

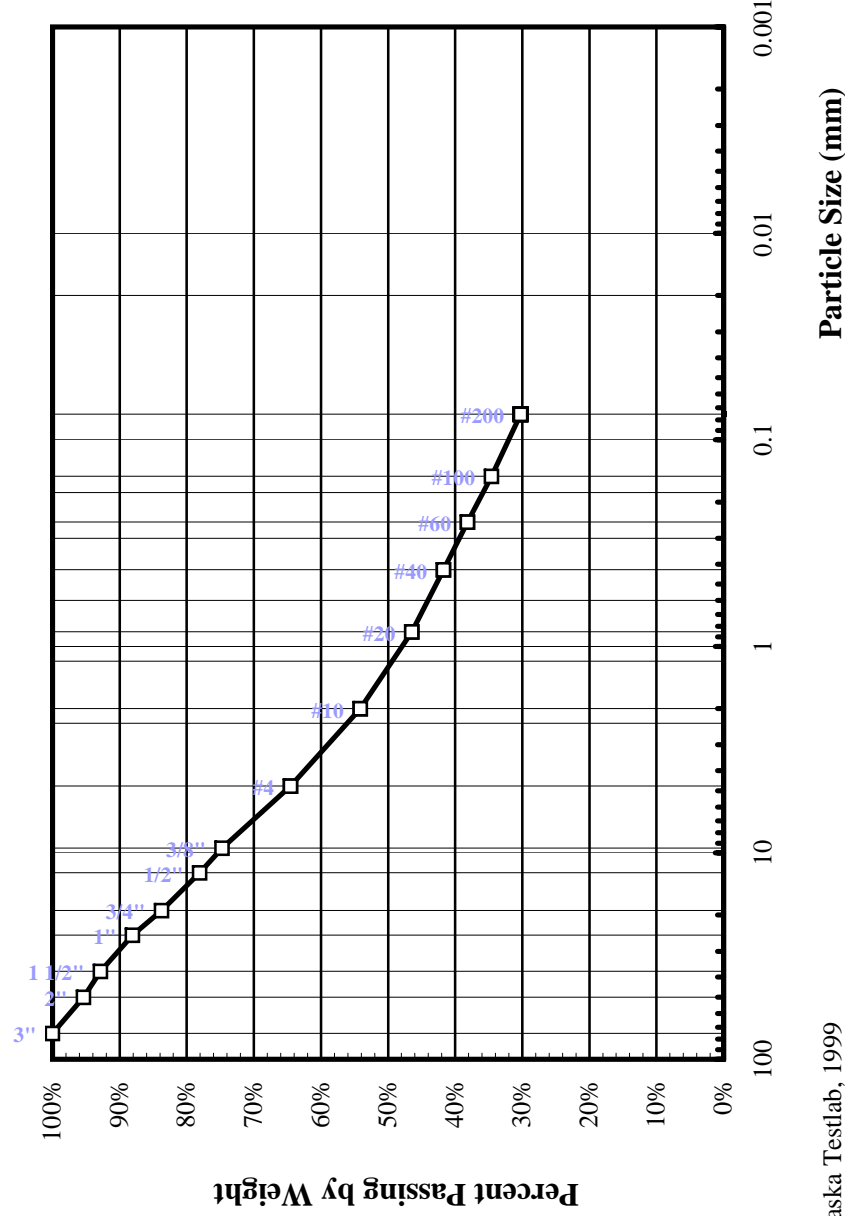
PARTICLE-SIZE
DIST. ASTM D422

W.O. D59146

Lab No. 2007-1180

Received: 8/1/07

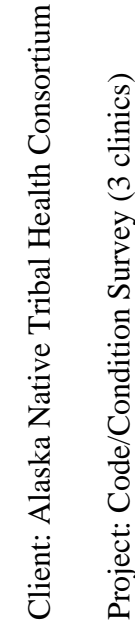
Reported: 8/03/07



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David L. Andersen, P.E., Technical Advisor



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SIZE	PASSING	SPECIFICATION
#3 in Not Included in Test = ~%		
3"		
2"		
1 1/2"	100%	
1"	97%	
3/4"	95%	
1/2"	89%	
3/8"	84%	
No. 4	70%	
Total Wt. = 3995g		
No. 8		
No. 10	53%	
No. 16		
No. 20	41%	
No. 30		
No. 40	35%	
No. 50		
No. 60	31%	
No. 80		
No. 100	26%	
No. 200	21%	
Total Wt. of Fine Fraction = 335.1g		
0.02 mm		



MEMORANDUM

To: Mr. Paul Morrison, ANTHC
From: Maria Kampsen, PE *MK*
Date: September 15, 2007
Subject: Togiak Clinic Material Site

W.O.: D59146

In mid-July 2007, DOWL Engineers (DOWL) conducted a preliminary site investigation for the Togiak Clinic. However, during the site visit, key community member were unavailable to assist with an investigation of potential material sites. Attempts to have samples shipped to us at a later date for evaluation were unsuccessful.

In August 2007, DOWL surveyors travelled to Togiak. During their stay, the surveyors learned the location of the material site currently used for local construction projects. The surveyors visited the material site where two distinctly different materials were observed.

One material was brown in color and silty while the second material was gray and more gravelly. The surveyors obtained three five gallon buckets of each type and shipped them to our laboratory here in Anchorage. Sieve analyses were performed and the results are attached.

The gray material which classifies as well graded gravel would be suitable for use as structural fill. The brown material could be used in deeper excavations and capped with the gray material. Quantities available of both materials at the material site were not determined.

PARTICLE-SIZE

DIST. ASTM D422

W.O. D59146

Lab No. 2007-1481

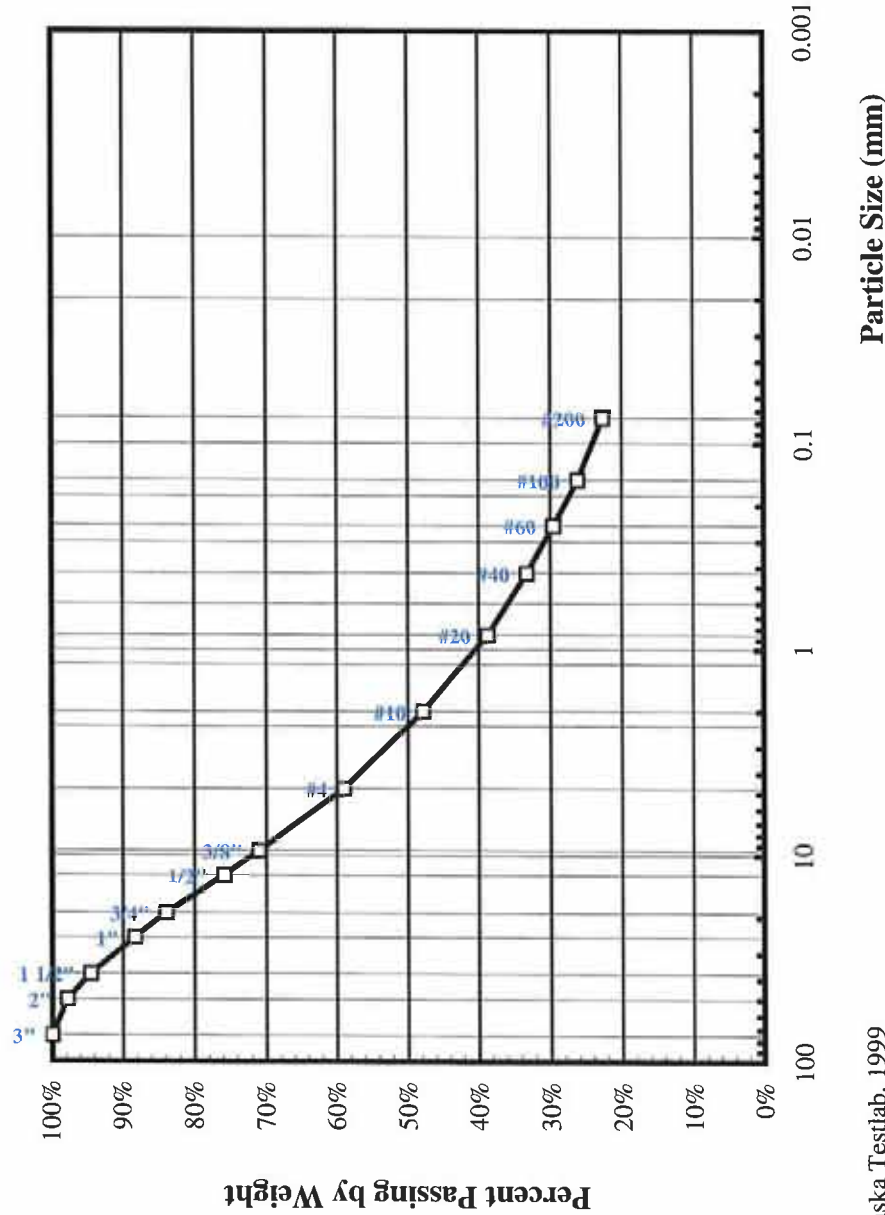
Received: 9/7/07

Reported: 9/15/07

Engineering Classification: Silty GRAVEL with Sand, GM

Frost Classification: Not Measured

SIZE	PASSING SPECIFICATION
+3 in Not Included in Test = 0%	
3"	100%
2"	98%
1 1/2"	95%
1"	88%
3/4"	84%
1/2"	76%
3/8"	71%
No. 4	59%
Total Wt. = 75466g	
No. 8	48%
No. 10	
No. 16	
No. 20	39%
No. 30	
No. 40	33%
No. 50	
No. 60	30%
No. 80	
No. 100	26%
No. 200	23%
Total Wt. of Fine Fraction = 443.6g	
0.02 mm	



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W.O. D59146

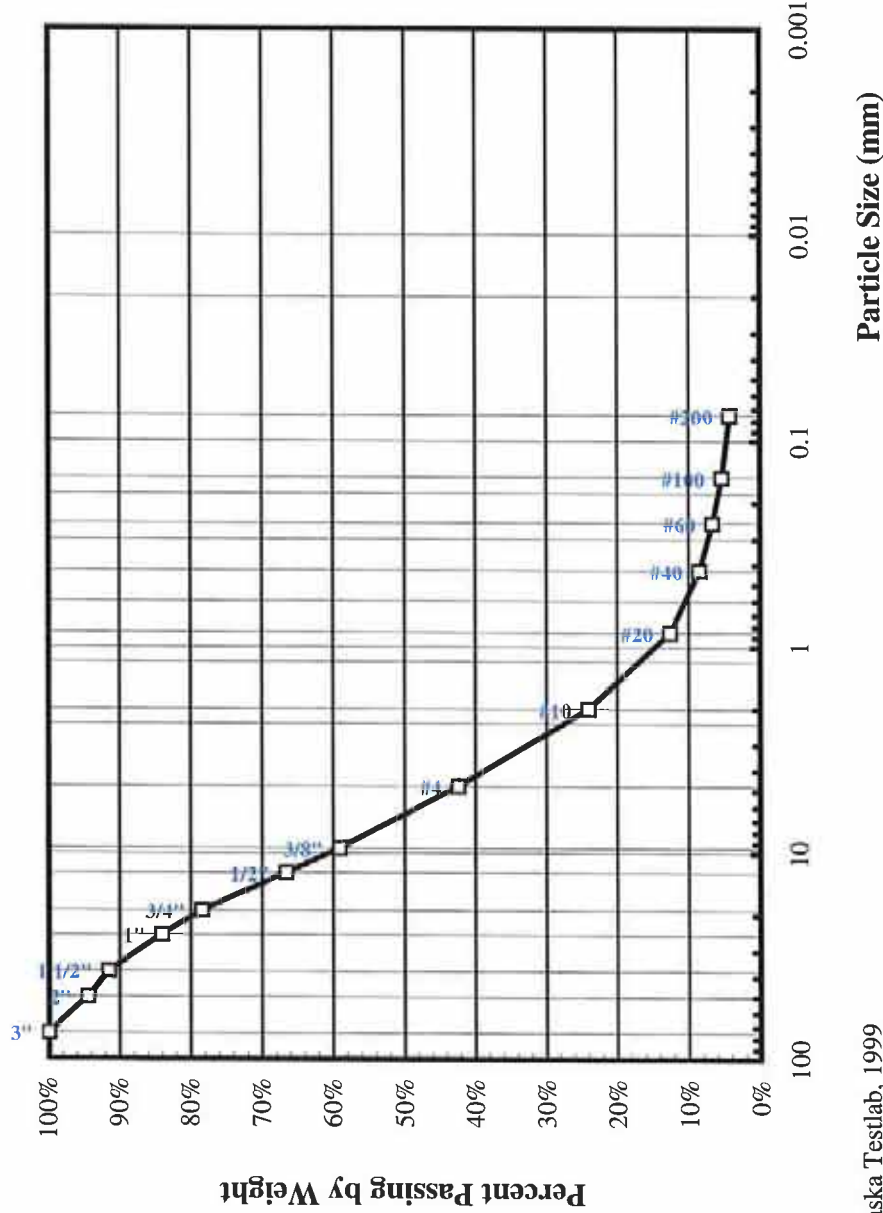
Lab No. 2007-1482

Received: 9/7/07

Reported: 9/15/07

Engineering Classification: Well Graded GRAVEL with Sand, GW

Frost Classification: Not Measured



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David L. Andersen, P.E., Technical Advisor

PROPOSED CLINIC TOPOGRAPHIC MAP

TOGIAK COMMUNITY MAPS





PROPOSED CLINIC SITE PHOTOS



Figure 1: View of proposed site from west side, facing east.



Figure 2: Aerial View, facing south west. Proposed site in upper right corner.



Figure 3: View of proposed site by south west lot corner, facing north west.



Figure 4: View of proposed site from Togiak Heights Road, facing north.



Figure 5: View of proposed site from east side of lot, facing south west.



Figure 6: View of proposed site from north east lot corner, facing south west.



Figure 7: View of proposed site from north side of lot, facing south.



Figure 8: View of proposed site from Toagiak Heights Road, facing north west.

**PROPOSED CLINIC EXTENDED UTILITIES
ROUGH ORDER MAGNITUDE COST ESTIMATE**

PROJECT: TOGIAC HEALTH CLINIC
ROUGH ORDER MAGNITUDE COST ESTIMATE

Prepared by: NANA/DOWL
Engineer: DEN
Date: 9/21/2007

ITEM	QUANTITY	UNIT	TOTAL RATE (\$)¹	COST (\$)
I. WATER SERVICE <i>(costs associated for the service connection greater than 150-feet)</i>				
Excavation & Backfill	667	Cubic Yard	\$ 14.57	\$ 9,713.33
Arctic Pipe Installation	1,800	Linear Foot	\$ 79.51	\$ 143,118.00
Heat Trace	1,800	Linear Foot	\$ 14.91	\$ 26,838.00
Connecting to building	1	Lump Sum	\$ 584.67	\$ 584.67
Connecting to main	1	Lump Sum	\$ 551.33	\$ 551.33
Testing & Disinfection	500	Linear Foot	\$ 3.41	\$ 1,705.00
Subtotal =				\$ 182,510.33
TOTALS				\$ 182,510.33
15% contingency				\$ 27,376.55
TOTALS FOR ROUGH ORDER MAGNITUDE COST ESTIMATE				\$ 209,886.88

Notes:

¹ Materials and labor rates. Rates averaged from other rural project estimate

Assumptions

1. 2007 dollars and construction date
2. Excavations assumes average depth of 5 feet and average width 2 feet
3. Arctic pipe assumes 6-inch HDPE carrier pipe with 12-inch jacket and insulation
4. Mobilization and Demobilization not include